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Implementation of the Heart Healthy Kids Toolkit by elementary school teachers in Thunder Bay and the factors that affect its use in the classroom

Paularinne, Michael Pentti James

IMPLEMENTATION OF THE HEART HEALTHY KIDS™ TOOLKIT BY ELEMENTARY SCHOOL TEACHERS IN THUNDER BAY AND THE FACTORS THAT AFFECT ITS USE IN THE CLASSROOM

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in partial fulfillment of the requirements for the degree of Master of Education.

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Abstract

The Heart Healthy Kids™ Toolkit (HHKT) is a health and physical education resource that elementary school teachers may use to help teach their students about the importance of being physically active, eating healthy, and living a smoke-free lifestyle (subsequently referred to as a heart healthy lifestyle). The focus of this study was to determine the level of awareness and use of the HHKT amongst elementary school teachers in Thunder Bay, and to identify factors that may be associated with its implementation in the classroom. Five hundred and twenty-nine elementary school teachers selected from 34 of the 50 public and separate elementary schools in Thunder Bay were asked to complete a seven-page survey. The survey answered the following research questions:

1. How many teachers are aware of the HHKT and how many of them used it during the 2001/02002 school year and to what extent and at what level?
2. How does the relative advantage, complexity, compatibility and observability of the HHKT affect its implementation in the classroom?
3. How does the current organizational and political climate, and the teachers training, educational background, HHKT implementation self-efficacy, self efficacy about teaching physically active health and physical education classes affect HHKT implementation?

The overall response rate was 20% (n=107). Of the 107 total respondents, 30 identified that they were aware of the HHKT (i.e. 28%). Sixteen of the 30 (53%) respondents who were aware of the HHKT indicated that they have used it during the 2001/02 school year. The factors that are most closely associated with its use were the respondents implementation self efficacy, the HHKT's perceived complexity, their awareness and concern for the health and physical education discipline and the perceived relative advantage of the HHKT over existing health and physical education resources.

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First, to all of the teachers who took the time out of their busy schedule to provide me with the data that was needed to complete this study and to the participating school boards and its principals for allowing me the opportunity to conduct this study in their schools.

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Finally to my parents, Marion and Pentti Paularinne, who have taught me that hard work, commitment, and perseverance often leads to success. Words can not express how truly grateful I am to have such supportive, dedicated, and caring parents.

Table of Contents

List of Tables

List of Figures

List of Appendices

CHAPTER 1

Introduction

Despite the recent advances in health promotion in our schools the number of physically inactive children and youth in Canada continues to be high. In fact, in 2000, 46% of the children and youth in Canada aged 5-17 were not active enough to meet Canada Health's energy expenditure guidelines for optimal growth and development; (8kcal/kg/day) (Craig, Cameron, Russell & Beaulieu, 2001). Concerns about physical inactivity are not limited to Canada, as the World Health Organization (2000) reported that less than one-third of children and youth from industrialized and developing nations were sufficiently active for optimal health and development. This global concern arises from the many health problems that are associated with physical inactivity.

It is well documented that physical inactivity is closely related to the increasing trend in overweight and obesity among Canadian children (Tremblay & Willms, 2000). Along with this trend is a rise in the prevalence of risk factors for later health problems including hypercholesterolemia, hypertension, impaired glucose tolerance, and Type 2 diabetes (Canadian Task Force on the Periodic Health Examination, 1994; Dietz & Gortmaker, 2001). The present and future health status of our younger generation and the significant health care costs associated with physical inactivity justifies immediate action for reversing these trends.

Nature and scope of the problem

Schools represent one of the few institutions that offer an opportune environment to impact public health (Centers for Disease Control and Prevention, 2000; Sallis et al., 1992). Comprehensive school-based health curricula, when effectively designed and successfully implemented, can play a significant role in educating students about the importance of living an active, healthy lifestyle (Centers for Disease Control and Prevention, 1997, 2000; Craig et al.,

2001). Over the last decade there has been a large influx of health curricula developed by regional, provincial, and federal organizations and agencies to guide disease prevention and health promotion in our schools.

The Heart and Stroke Foundation of Ontario is one of several organizations that have designed pre-packaged health curricula that support the Ontario health and physical education curriculum. One of these programs is the Heart Healthy Kids™ Toolkit (HHKT). This resource was developed in consultation with teachers, health-care professionals, consultants, and foundation volunteers to supplement existing school-based support programs, and to alert teachers to the possibilities for teaching heart health in the gymnasium and beyond from junior kindergarten to grade 8 (A. Anderson, personal communication, October 30, 2003). The goal of the HHKT is to provide educators with the necessary information and resources they will need to educate our younger generation in the importance of being physically active, eating healthy, and living smoke-free. It has been widely distributed throughout Ontario elementary schools through presentations and workshops to teachers at provincial and national health and physical education conferences, pre-service teacher workshops at various faculties of education, in-service training, school presentations by regional offices, the Heart and Stroke Foundation Web site (http://www.heartandstroke.ca/healthyliving/ and follow the link to "resources for teacher"), and the Ontario Physical Health Education Association (O.P.H.E.A.) Web site (http://www.ophea.net/opheaprogramsmain.cfm), where segments of it are available to download. Currently it is distributed annually to approximately 5,000 schools nationally, and to 3,500 student teachers at various faculties of education throughout Ontario. Even though data on the distribution of the HHKT to teachers and schools reflect their potential availability in the schools, they do not indicate their use in the classroom.

To date, there are two studies that have looked at implementation of the HHKT in the classroom. The first study was conducted in 1999, by a professional research firm. The focus of the study was to "obtain feedback from teachers on their use and opinions about the program" (Ennis and Associates, 1999). The study found that 60% of the teachers who responded to their survey had used at least parts of the HHKT. The study was limited by the fact that the respondents were not randomly selected to participate in the study, therefore the sample was not representative of the target population and the response rate was 20%. These limitations, in turn, affect the generalizability of the study, as there is not enough data to justify the final conclusions the researchers have made regarding the respondents' use and opinions about the HHKT.

The second study was conducted between 2001 and 2002 at the Faculty of Education at Lakehead University. The focus of this study was to evaluate "the effectiveness of an innovative dissemination strategy for the Heart Healthy Kids™ Toolkit (HHKT)" (Socha, 2004).This study involved three hundred and thirty faculty of education students who attended a 90 minute workshop on the HHKT. After attending the workshop, the students were asked to show the HHKT to their associate teachers during their student teacher placements. Only 15.6% of the 330 students showed the HHKT to their associate teachers and 10.4% of them used the HHKT during their placement. The researcher concluded the dissemination strategy resulted in a 10.5% increase in the total number of teachers who were made aware of the HHKT, however, the results from this study were as well limited by the fact that the respondents were not randomly selected to participate in the study and the factors affecting implementation were not examined.

Research problem, questions and expectations

This study was developed to assess the extent to which elementary school teachers in Thunder Bay were aware of and actively using the HHKT, and to determine which factors were associated with its implementation. In order to evaluate these objectives an 84-item self-report

survey questionnaire (Appendix A) was constructed. The purpose of the questionnaire was to gather information that would provide answers to the following research questions:

1. What percentage of elementary school teachers in Thunder Bay are aware of the HHKT?
2. For those teachers who are aware of the HHKT, how many of them used it during the 2001/2002 school year and to what extent and at what level?
3. How does the relative advantage, complexity, compatibility and observability of the HHKT affect its implementation in the classroom?
4. How does the current organizational and political climate, and the teachers training, educational background, HHKT implementation self-efficacy, self efficacy about teaching physically active health and physical education classes affect HHKT implementation?

It is expected that the results from this study will reveal that:

1. Less than half of the teachers involved in the study are aware of the HHKT and an even smaller number will have actually used it in the classroom during the 2001/02 school year.
2. Teachers who believe that the HHKT has a greater relative advantage, is less complex to use and understand; and teachers who believe the HHKT will produce positive results in their students' behaviour are more likely to use the HHKT.
3. Teachers who believe the HHKT will produce results that are readily observable and who feel the HHKT is compatible with existing programs in their school are more likely to use it.
4. Teachers who have been trained to use the HHKT are more likely to implement it.
5. Teachers who are educated in a field related to the health and/or physical education discipline (i.e. health sciences, kinesiology, health and physical education, etc.) are more likely to use the HHKT.
6. Schools whose principals support implementation of the HHKT, and whose teachers are satisfied with their jobs and their administrators, will implement the HHKT more often.

7. Schools whose teachers feel they are involved in the decisions regarding school policy and practice will have greater levels of HHKT implementation.
8. Teachers who feel confident in their ability to implement the HHKT as intended and who feel confident that they can teach physically active health and physical education classes will be more likely to use the HHKT.
9. The time and resources available for teachers to use the HHKT will be affected by the political climate of the education system.

Theoretical implications

Rogers' (1995) diffusion of innovations, Bandura's (1986) social cognitive theory, and Hall, Wallace and Dossett's (1973) concerns-based adoption model (CBAM) have provided the conceptual framework for this study. According to Rogers and Shoemaker (1971), in order for an innovation to be incorporated into a school, implementers must consider the relative advantage, compatibility, complexity, trialability, and the observable effects of the innovation. Rogers (1995) also believes that the teacher's attitude towards the innovation affects whether it will be used or not. The social cognitive theory suggests that the implementation self-efficacy of those individuals who use an innovative program and who teach health and physical education will affect whether the program is actually used in the classroom. This theory also suggests that issues of cost, skills, and resources affect adoption decisions. Other contextual variables such as the organizational climate of the school (Fullan, 2001; McCormick, Steckler & McLeroy, 1995; Parcel et al., 1995; Roberts-Gray & Scheirer, 1988; Smith, McCormick, Steckler & McLeroy, 1993; Steckler, Goodman, McLeroy, Davis & Koch, 1992; Villalbi et al., 1997), HHKT training (Altschuld, Kumar, Smith & Goodway, 1999; Basen-Engquist et al., 1994; Hoelscher et al., 2001; Huberman & Miles, 1984; McCormick et al., 1995; Ross, Nelson & Kolbe, 1990; Smith et al., 1993; Tortu & Botvin, 1989), and the political climate surrounding the existing education

system (Fullan, 2001) must be considered when attempting to diffuse innovative programs into the school system. For example, the current political climate surrounding the education system has been concentrating a lot on physical inactivity amongst our elementary school aged children thus suggesting the possibility that more attention may be given to programs like the HHKT and its importance in making elementary aged children more heart healthy.

Significance of the study

The results from this study would help to identify the factors affecting the efficacy of implementation of the HHKT so that in the future these factors can be addressed prior to a program's implementation into the school system. The present study would also contribute to the research area of diffusion of health promoting innovations into our schools. More specifically, it is hypothesized that the results from this study would assist in the development of effective dissemination strategies for implementing health curriculum support material in our schools.

Delimitation of the study

The following is a delimitation of this study:

The results from this study reflect the current practices and attitudes of the elementary school teaching population of the City of Thunder Bay.

Limitations of the study

Due to the low response rate, it is not possible to generalize the results from this study to elementary school teachers outside the City of Thunder Bay.

Definition of terms

The following are descriptions of key terms used throughout this study:

Adoption- "A decision to make full use of an innovation as the best course of action available" (Rogers, 1995, p. 21). In the case of this study, adoption has been operationally defined as the decision to use at least one of the HHKT materials once.

Awareness- The respondent is more or less aware that the HHKT exists (Steckler, Goodman, McLeroy, Davis & Koch, 1992).

Compatibility- "The degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters" (Rogers, 1995, p. 15).

Complexity- "The degree to which an innovation is perceived as difficult to understand and use" (Rogers, 1995, p. 16).

Concern-"The composite representation of the feelings, preoccupation, thought, and consideration given to a particular issue or task" (Hall & Hord, 1987, p. 58).

Diffusion- "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1995, p. 10).

Health and physical education- a curriculum which "provides students with learning opportunities that will help them make positive decisions about all aspects of their health and encourage them to lead healthy, active lives" (Ontario Ministry of Education, 1999).

Implementation- "When an individual (or other decision making unit) puts an innovation into use" (Rogers, 1995, p. 20). Implementation is made up of 3 components: Extent of implementation, level of implementation, and levels of use:

Extent of Implementation- The percentage of total HHKT material that was used (McCormick, Steckler & McLeroy, 1995).

Level of Implementation- The total percentage of teachers who are actually using the HHKT in their classroom more than one time (Steckler et al., 1992).

Levels of Use- This dimension "focuses on the behaviours that are or are not taking place in relation to the innovation" (Hall & Hord, 1987, p. 81). Hall, Loucks, Rutherford & Newlove (1975) developed 8 levels of use which range from Level I-Non-use to Level VI- Renewal. A person in level I basically has no

knowledge of the innovation and no plans to use it, while a person who is in level IVB has a great deal of knowledge about using the innovation and the effects of its use.

Innovation- "An idea, practice, or object that is perceived as new by an individual or other unit of adoption" (Rogers, 1995, p.11).

Interest- The respondent expresses an interest in doing something about the problem by showing an interest in learning how to teach students to live a physically active, healthy lifestyle (Steckler et al., 1992).

Observability- "The degree to which the results of an innovation are visible to others" (Rogers, 1995, p. 16).

Organizational Climate- The general feelings and attitudes of the members of an organization related to one another and to their organization. Included in this contextual variable is the person(s) satisfaction with their jobs, their administrators, and their involvement in decision making processes (McCormick et al., 1995; Steckler et al., 1992).

Trialability- "The degree to which an innovation may be experimented with on a limited basis" (Rogers, 1995, p. 16).

CHAPTER 2

Literature Review

This chapter focuses on the diffusion of innovative school-based programs. It begins with a discussion of the Heart and Stroke Foundation (HSF), Heart Healthy Kids ™ Toolkit (HHKT), its dissemination strategies, and the results from two studies that have evaluated its use in the classroom. The second part of this chapter takes a look at the theoretical basis of the diffusion process and the findings from various studies that have tested it. More specifically, the factors that affect the diffusion process, Rogers' (1995) diffusion of innovations theory, and Bandura's (1986) social cognitive theory are discussed throughout this chapter. The chapter concludes with a description of the concerns-based adoption model (CBAM), the six assumptions it makes about the change process, and the dimensions that it is made up of: Stages of Concern (SoC); Levels of Use (LoU); and, Innovation Configurations (IC).

The Heart and Stroke Foundation

The Heart and Stroke Foundation is committed to educating Canadians about the importance of being physically active, eating healthy, and living a smoke-free lifestyle (referred to as a heart healthy life). Their Ontario branch is one of ten independent provincial foundations that make up the Heart and Stroke Foundation of Canada. They are committed to reducing "the risk of premature death and disability from heart disease and stroke by raising funds for research and health education" (http://ww2.heartandstroke.ca). Their school-based support programs, which teachers can use to enhance their existing health and physical education resources, are dedicated to raising our school-age children's level of awareness and understanding of why it is important to be heart healthy. In particular, in 1998 the Heart and Stroke Foundation of Ontario introduced into Ontario's elementary school system a new health and physical education initiative known as the Heart Healthy Kids™ Toolkit (HHKT).

The Heart Healthy Kids ™ Toolkit

The Heart Healthy Kids ™ Toolkit program was developed in consultation with teachers, health-care professionals, consultants, and foundation volunteers to supplement existing school-based support programs, and to alert teachers to the possibilities for teaching heart health in the gymnasium and beyond (A. Anderson, personal communication, October 30, 2003).

The goal of the HHKT is to provide educators with the necessary information and resources they will need to educate our younger generation in the importance of living a heart, healthy lifestyle. More specifically, the HHKT was designed to:

a) "encourage students to be more active,
b) enhance instruction in physical and health education and other areas of the curriculum related to heart health such as nutrition and smoking prevention,
c) enable teachers to engage students in heart health activities related to their interests and needs,
d) present teachers with alternative ways to promote heart health: experimentation, self-study, home study, cooperative learning, student created games, etc.,
e) increase teachers' knowledge of ways to teach fundamental motor skills that enable students to be more active,
f) increase students' knowledge of ways to learn and self monitor skills that lead to enhanced levels of activity,
g) increase students' access to playground and after school activity through skill development and improved self-confidence" (Anderson & Indovina, p.1, 2002).

Since its inception in 1998, the HHKT has undergone annual revisions. Some of the more recent changes included adding additional activities that complement the existing ones. To-date,

the HHKT consists of the following items, which have all been approved by Curriculum Services Canada:

- HeartSmart™ Puzzle Storybook for primary grades- developed in 1998.
- 10 Educational posters- developed in 1998.
- Lesson Plans, large posters, and 8 grade specific books about heart health for grades K-8- developed in 1998 to teach students about heart, nutrition, physical activity, smoke-free living and emergency response.
- Stethoscope/alcohol swabs- developed in 1998 to provide students with a hands-on opportunity to hear their heartbeat.
- Daily physical activity guide and video- developed in 1999 to provide teachers with a selection of activities that they can use to incorporate daily physical activity into their classroom using only 10 minutes of class time with no equipment or gym space needed.
- 4 Playskills: HeartSmart™ Family Activity books for grades K-3- developed in 2000 to teach students about the basic skills of sport and play and to enable students to build confidence in their skills.
- 5 Powerskills: HeartSmart™ Family Activity books for grades 4-8- developed in 2001 to teach basic skills and strategies as well as providing options to spark the interest of students that do not enjoy traditional sports activities.
- Jumping into the Curriculum™- A booklet developed in 2002 to act as a resource that supports the Jump Rope for Heart program by providing skipping activities, activities that gets kids active, and to provide teachers with a resource that would support curriculum and require minimal preparation/equipment.
- Resource guide of 9 heart health related web site addresses (T. Houston-Purdy, personal communication, February 3, 2003).

In order to maximize use of the HHKT in the classroom, the Heart and Stroke Foundation of Ontario has developed a series of dissemination strategies geared towards encouraging teachers to incorporate the HHKT into their health and physical education program.

Heart Healthy Kids™ Toolkit dissemination strategies

One of the most recent dissemination strategies that the Heart and Stroke Foundation of Ontario has developed targets student teachers at various Ontario faculties of education as potential HHKT adopters. The HHKT has also been distributed throughout Ontario elementary schools through presentations and workshops to teachers at provincial and national health and physical education conferences such as the Ontario Physical and Health Education Association (OPHEA) and the Canadian Association of Health and Physical Education, Recreation, and Dance (CAHPERD). The HHKT has also been featured at a number of pre-service teacher workshops at many Ontario faculties of education, in-service training, the Heart and Stroke Foundation's Jump Rope for Heart program, school presentations by regional offices, the OPHEA Web site (http://www.ophea.net/opheaprogramsmain.cfm), and the Heart and Stroke Foundation Web site (http://www.heartandstroke.ca/healthyliving/ and, follow the link to "resources for teacher"), where segments of it are available to download.

Currently the HHKT is distributed annually to approximately 5,000 schools nationally, and to 3,500 student teachers at various Ontario faculties of education. However, despite its widespread distribution, the HHKT has not been widely implemented by elementary school teachers in Ontario.

Evaluation of the Heart Healthy Kids™ Toolkit

Two studies were conducted in 1999 and 2001/2002, to find out why the HHKT is not implemented by the majority of the Ontario's elementary school teachers. These studies

evaluated the contents of the HHKT and suggested possible reasons as to why this innovative program was not being used.

The first study was conducted by a professional research firm to "obtain feedback from teachers on their use and opinions about the program" (Ennis and Associates, p.1, 1999). The second study was conducted at the Faculty of Education at Lakehead University. This study evaluated the "effectiveness of an innovative dissemination strategy for the Heart Healthy Kids™ Toolkit" (Socha, p.81, 2004).

The first study found that 60% of those Ontario teachers who completed and returned a survey had used at least parts of the HHKT to-date. Of those teachers who had not used the HHKT (n=38), 85% intended to use it in the near future. The most frequently cited reason for not using the HHKT was that the teacher planned to use it during the Jump Rope for Heart program (29%), and that they did not have enough time to implement it (29%) (Ennis and Associates, 1999). The results from this study were affected by the failure of the researchers to use random sampling and the studies low response rate (20%).

In contrast, the results from the later study indicated that its dissemination strategy increased the level of awareness by 10.5% [95% confidence interval (5.6%-15.4%)], bringing the total level of HHKT awareness to 42.8%. Furthermore, the study showed that 15.6% [95% confidence interval (10.9-20.3)] of the 152 associate teachers and 10.4% [95% confidence interval (6.5-14.3)] of the 330 student teachers who were surveyed, had used parts of the HHKT during the school year, or during their six-week placement, respectively. Even though 76% of the associate teachers (152/201) and 70% of the student teachers (230/330) had returned a completed survey, the results from the study were limited in generalizability by the small sample size and the fact that respondents were not randomly selected to participate in the study.

The HHKT is one of many school-based health promotion programs that have made its way into Ontario's education system. Like many of these other support programs, its use in the classroom is uncertain. In order to be able to determine its use in the classroom, one must first understand the diffusion process and how innovative programs like the HHKT are disseminated and implemented in our school system. Rogers' (1995) diffusion of innovations, Bandura's (1986) social cognitive theory, and Hall, Wallace, and Dossett's (1973) concerns-based adoption model (CBAM) have provided insights into this diffusion process. Figure 1 identifies the factors that affect implementation of school-based innovations. These factors will be discussed throughout the remainder of this chapter.

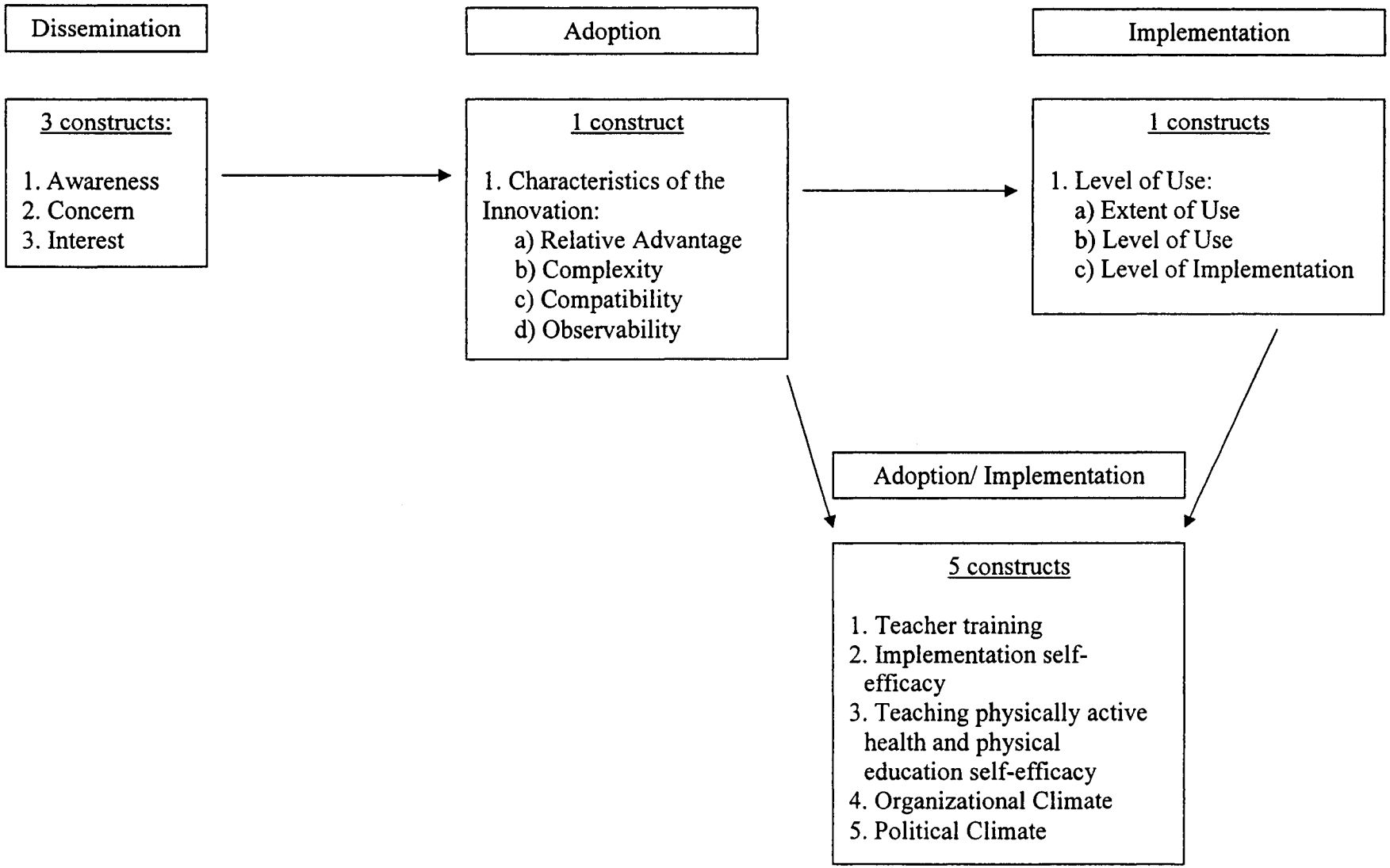

Figure 1. The factors that affect use of the Heart Healthy Kids™ Toolkit in the classroom.

Diffusion of innovations

Diffusion is "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1995, p. 10) where an innovation is an "idea, practice or object that is perceived as new by an individual or other unit of adoption" (p.11). According to Rogers, the decision to adopt, implement, and institutionalize an innovation is not an instantaneous act, but rather a process that occurs in four distinct stages. During the first stage, *dissemination,* the potential adopter is made aware of the program and encouraged to adopt it. The second stage, *adoption*, takes place when they make the commitment to initiate the program, while the third stage, *implementation*, occurs as soon as the program is administered on a regular basis. The fourth and final stage is *maintenance;* during this stage the implementers are encouraged to continue using the program for the remainder of the year and into subsequent years. These four stages (dissemination, adoption, implementation, and maintenance) make up the diffusion process (Rogers, p.11, 1995).

While it is important to understand these stages, it is also important to be able to identify the factors that affect them. Therefore, the goal of this section is to not only introduce the reader to the stages of the diffusion process, but to also identify the factors that affect them.

Dissemination stage

The goal of the dissemination stage is to increase teachers' and administrators' awareness of the innovation and to increase their receptivity towards adopting it (Brink et al., 1995). According to the stage theory of organizational change described above, in order to generate awareness of and concern for an innovation the dissemination strategy must be divided into the following steps (Steckler et al., 1992). First, identify the problem and locate the individuals most likely affected by it. Next, try to convince them that a problem does in fact exist but that

solutions are possible. Finally, develop a strategy to solve the problem and if it is successful introduce it to other situations.

A review of the literature indicated that the following dissemination strategies have shown some degree of effectiveness. First, researchers have determined that multiple messaging sources (e.g. television, interpersonal communication, print material, etc.) are more effective than single sources (Brink et al., 1991; Hoelscher et al., 2001). Brink et al. (1991) found that 76.8% of the 96 teachers who were aware of their program had received information about it through more than one print source (newsletters, fliers, and notices). Despite the fact that multiple messaging sources were effective in this study, only 44.7% of the 215 teachers were aware of their program. This failure was attributed to the fact that some of the teachers were never even exposed to the program. Therefore, Brink et al (1991) suggested that researchers who use multiple messaging sources to disseminate their innovation and who use a delivery system that will ensure that the target population receives the appropriate material will have a better chance of generating greater levels of awareness.

Using interpersonal communication channels such as formal and informal meetings and conversations have also shown to be an effective dissemination strategy (Brink et al., 1991; Brink et al., 1995; Hoelscher, 2001). For example, Brink et al. (1991) determined that 67.4% of the 96 teachers who were aware of their program had received information about it from a professional meeting that they had attended. Furthermore Brink et al. (1995) found that 66% of the 123 school districts, who provided information about their dissemination strategy, had engaged in an informal conversation about the program with either another teacher or their school administrator. Even though their dissemination strategies effectively generated awareness and concern for their program, they failed to increase the teachers' and administrators' receptivity towards adopting it. This was because the teachers and administrators already had favourable

attitudes towards "tobacco use prevention programs" prior to employing their plan thus making it difficult to show that their dissemination strategy would lead to further positive changes. Hoelscher et al. (2001) developed an extensive dissemination strategy that would allow for greater opportunities to present their program to larger populations. The strategy they utilized included developing partnerships with professional and private organizations, associations, departments, and district administrators, along with recruiting the services of opinion leaders to help disseminate the program to directors of education and regional school health coordinators. Furthermore they also utilized media through recruitment and training videos, brochures, personalized cover letters, and a web site. Surprisingly this approach, with the exception of the recruitment video, was ineffective in reaching the goal of convincing the target audience to adopt their program. Also, rather than targeting the entire population (all elementary schools in Texas), they found that dividing the state into 20 different state education regions and targeting one region at a time was more effective. Even though their program was disseminated to 75% (15/20) of the Texas education agency regions, it was adopted by only 728 elementary schools, representing a modest 19% of the total number of schools in the state. While their approach was ineffective, their study determined that interpersonal channels such as opinion leaders and networking personnel appeared to be more effective than print material. Secondly, they found that programs that were innovative and financially supported had a stronger chance of being disseminated into a school. Finally, according to these investigators, media campaigns by themselves may not work, therefore combining media sources like print material with interpersonal channels enhances the effectiveness of their dissemination strategy (Hoelscher et al., 2001).

While these studies were not successful in increasing teachers and administrators' receptivity towards adopting their program, they did result in a number of recommendations that

may enhance the effectiveness of the dissemination process. For example, dissemination strategies that are extensive, which use multiple messaging sources, are less formal, which specifically address the issue of concern, and are available long enough to generate change have shown to be somewhat effective. Although these strategies have been shown to be effective, they do not guarantee that change will occur, nor do they guarantee that the innovation will be used. In fact, in order for a program to be used, dissemination strategies must not only attempt to generate mass awareness and concern for the innovation, but they must also address the factors that are associated with its adoption.

To evaluate the dissemination stage, the present study determined the number of elementary school teachers in Thunder Bay who are aware of the HHKT and their primary and secondary sources of awareness. This data will give the Heart and Stroke Foundation of Ontario a better understanding of the effectiveness of their dissemination strategies and will allow the researcher the opportunity to determine the overall level of awareness and the sources that were the most effective in generating it.

Adoption stage

Rogers' & Shoemaker (1971) believe that in order to persuade a school district to adopt an innovation, communication strategies must concentrate on its perceived attributes. In other words, as Rogers (1995) describes innovations that are perceived by individuals as having greater relative advantage, compatibility, observability, less complexity and which allow its potential implementers to experiment with the innovation prior to adopting it (trialability) will be adopted more rapidly than other innovations. Therefore, innovations that are believed to be more effective than existing programs, are compatible with the current values, beliefs, ideas, needs and/or practices within the school, and which are not too difficult to use or understand, have

greater levels of adoption. Furthermore, innovations that allow for *"trialability"* and which produce results in students' behaviour that are easy to detect also have high levels of adoption.

Parcel et al. (1995) used a 5-point Likert scale (1= strongly disagree, 5= strongly agree) to confirm that the variables most closely related to a school district's decision to adopt their smoking prevention program were in fact the attitudes of the teachers and the administrators towards the program. More specifically, the teachers' and administrators' perception of the relative advantage of the innovation over existing programs, the teachers attitudes towards tobacco prevention, and their attitudes about tobacco policy were indicative of adoption. Fullan (2001) also addressed the fact that the harder and more extensive the change is, the less likely it will occur, thus suggesting that the more difficult the change is the lower the chances of it being adopted. Bandura (1986) in his Social Cognitive theory states that factors other than the characteristics of the innovation affect the adoption process. For example, according to him offering incentives to entice people to adopt an innovation is an important factor to consider as the more resources an innovation requires the less likely it will be adopted. Therefore, researchers who offer both financial and social incentives such as low program costs and free teacher training have a better chance that their innovation will be adopted. According to Rogers (1995), incentives increase the rate of adoption by increasing the innovation's relative advantage and observability. They encourage individuals who normally would not adopt innovative programs to do so otherwise and thus increase the overall level of adoption.

Schools which participate in a pilot study of the innovation prior to its dissemination are more likely to adopt and implement it once it becomes available (Hoelscher, 2001). Villalbi (1997) discovered that 17.9% of the 446 primary schools in Barcelona, Spain had adopted the program under study. The project they examined was a substance abuse prevention programme developed in Barcelona, Spain. Of the 17.9% of the schools who adopted the program, 63% of

them took part in a pilot project of the program, while 15.9% did not. This would suggest that previous experience has an effect on the final adoption decision.

"The decision-making process for adopting the intervention can take one of three forms: (1) authoritative, in which case the decision is made at an administrative level; (2) collective, in which case a group of teachers or schools within a district make the decision; and (3) optional, in which case individuals accept or reject the innovation" (Hoelscher, 2001, p. 95). "Adoption decisions within schools are generally made at the administrative level, while implementation decisions are usually made at lower organizational levels" such as by the teachers within the school (McCormick et al., 1995). However, even if the administrators have made the decision to adopt an innovation it does not guarantee that it will be implemented at the teacher level, therefore higher level adoption decisions do not necessarily imply that the innovation will be implemented (Hoelscher, 2001).

To-date the Heart and Stroke Foundation of Ontario has not used any adoption strategies at the school board level, therefore there is a need to look at Rogers' (1995) adoption variables at the teacher level. At the teacher level, the Heart and Stroke Foundation of Ontario has decided to offer free teacher training to any in-service associate teacher who chooses to learn more about the HHKT and how they may incorporate it into their health and physical education program.

Implementation stage

For the most part, program implementation is measured according to the quantity, or program exposure, and the quality, or the extent to which the program is implemented as it was intended to be (Basen-Engquist et al., 1994; McGraw et al., 2000; Resnicow et al., 1998; Rohrbach et al., 1993). The following recommendations (standardized testing, leadership, previous educational training, local factors, and the organizational climate) have been made to enhance the chances that an innovation will be used in the classroom as explained below.

Smith et al. (1995) learned that "environmental turbulence [such as negative attitudes, perceptions, and opinions about the health issue] influences health curriculum adoption and implementation" (p. 37). Programs that are viewed positively by the teaching population have a greater chance of being implemented. Secondly, "health curriculum implementation is affected by standardized testing in other subject areas" (Smith et al, 1995, p. 38). Administrators are often more concerned with improving their school's overall test scores and because health is not an evaluated subject in standardized tests it is often ignored. "Problems arise when health is taught within other curriculum areas, [most] notably physical education and science" (Smith et al, 1995, p. 38), especially when those teachers teaching it are not prepared or do not take the subject seriously. In other words programs that are not taken seriously by its implementers will be less effective in accomplishing its goals and objectives. "Leadership for health is critical to adoption and implementation of school health instruction" (Smith et al, 1995, p. 39). If health education is to be effective, the responsibilities of the program must be coordinated by someone who is trained and educated in the health discipline (which often is not the case), such as a district health coordinator, a school health coordinator, or a physical and health education teacher. "Health education often is implemented without adequate K-12 planning" (Smith et al, 1995, p. 40), thus suggesting that health education may be taught haphazardly, or not at all. "Program champions and patron saints are critical to the implementation of school health education" (p. 40), this suggests that school administrators must appoint the responsibilities of the health curriculum to someone who is educated in the health field or who is well suited to coordinate the program.

Local factors such as the school district, the school board, and the role of the principals and the teachers also affects implementation (Fullan, 2001). Fullan (2001) stated that "the more that teachers and others have had negative experiences with previous implementation experiences in

the school district or elsewhere, the more cynical or apathetic they will be about the next change presented, regardless of the merit of the new idea or program" (pp. 80-81).

Implementation is also affected by the organizational climate surrounding the school. Generally speaking, those schools which have a supportive organizational climate are more likely to implement an innovative program than schools whose organizational climate is less supportive (Fullan, 2001; McCormick et al., 1995; Parcel et al., 1995; Roberts-Gray & Scheirer, 1988; Rohrbach et al., 1993; Smith et al., 1993; Steckler et al., 1992; Villalbi et al., 1997). Organizational climate can be defined as the general feelings and attitudes of the members of an organization towards one another and towards their organization. Included in this contextual variable is the person's satisfaction with their jobs, their administrators, and their involvement in decision making processes regarding school policy and procedures (McCormick et al., 1995; Steckler et al., 1992). McCormick et al. (1995) reported that 46% of those schools whose teachers felt comfortable and secure with their jobs, and who felt that they were involved in the decisions regarding school policy and practice had implemented one of the three programs (growing healthy, teenage health teaching modules, project SMART), one year after they received training on how to use it (p=.09). Similarly, Smith et al (1993) reported that school districts with a supportive organizational climate were either early implementers (χ^2= 1.06, p= 0.79), or late implementers (χ^2= 15.40, p= 0.00) of one of the three programs involved in their study. Early implementation meant that the teacher used the program during the spring of 1989, while late implementation meant that the teacher had used it sometime during the 1989-90 school year. Rohrbach et al. (1993) found that 74.4% of those schools who had implemented their program had received encouragement and support from their principals versus 49.3% who had implemented the program despite not receiving any support for it from their principals (p=0.05).

Teacher training also affects program implementation as teachers who have been trained to use an innovation prior to implementing it, are more likely to use it in the classroom (Altschuld et al., 1999; Basen-Engquist et al., 1994; Brink et al., 1991; Hoelscher et al., 2001; Huberman & Miles, 1984; McCormick et al., 1995; Parcel et al., 1995; Ross, Nelson & Kolbe, 1990; Smith et al., 1993; Tortu & Botvin, 1989). Trained teachers have been found to implement health curriculum programs with greater fidelity, achieve a greater number of student outcomes on student knowledge and attitudes towards the subject, and feel better prepared to teach the program than untrained teachers (Ross, Luepker, Nelson, Saavedra, & Hubbard, 1991). Fidelity refers to the "degree to which teachers taught the curriculum as it was designed" (Smith et al, 1993, p. 351). Smith et al. (1993) determined that 80.4% of those teachers who received training and 77.8% of those teachers who did not, were early implementers (χ^2=0.06, p=0.81) while 62.8% of the trained teachers and 36% of the untrained teachers were late implementers (χ^2= 9.11, p= 0.00). Therefore it can be concluded that teacher training affects implementation of late implementers but not early implementers. A three-part training regime was employed in this study, which included a two hour pre-training consultation, either a 2 day or a 4 day in-depth training workshop which depended on the program that the school district selected, and a two hour post-training consultation. Of the 19 school districts involved in this study, 16 (84%) had adopted at least one of the three programs. From this study we can conclude that trained teachers are more likely to implement programs that they are trained to use and to implement them for longer periods of time. Similarly, McCormick et al. (1995) reported that 91% of the trained teachers versus 50% of the untrained teachers (p=0.005) had implemented at least one of the three programs they looked at.

While these studies concluded that training directly affected the implementation process, Smith et al. (1995) found that when teachers were provided with a curriculum and specific

training, they sometimes failed to implement the curriculum, or to implement it as desired. This suggests that training alone does not guarantee program implementation. Some of the reasons why trained teachers did not implement the program included; 1) the strategies taught at the training sessions were not compatible with their teaching styles; 2) there were qualified personnel such as school health coordinators and school nurses, who could do a more effective job of implementing the program; and, 3) school administrators did not actively support the program. Therefore if training is to be effective it must fit the user's individual needs.

A person's perceived self-efficacy also affects program implementation. Perceived self-efficacy is an individual's own "judgement of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with the judgments of what one can do with whatever skills one possesses" (Bandura, 1986, p. 391). Generally speaking, if the teacher does not feel confident in their ability to implement the program, there is a less likely chance that it will be used.

The political climate surrounding the existing education system is another factor that must be considered when implementing innovative programs into the school system (Fullan, 2001). Fullan reports that factors outside the control of the school such as the Ministry of Education, faculties of education, and other regional education offices can affect implementation. For example, if these organizations do not believe that the school is doing enough to produce effective citizens for the future, they can mandate new provincial guidelines as policy. This ultimately affects implementation of those programs that are not mandated by the provincial government. Recently, government agencies have become more active in improving the implementation process by allocating resources to help clarify the standards of practice, establish implementation units, assess the quality of potential changes, support professional development, and to monitor implementation of policies (Fullan 2001). Fullan (2001) also reports that factors

such as staff turnovers, restructuring of school format, provincial funding, poor accessibility of curriculum resources and materials, and curriculum standards will all affect program implementation. Furthermore, both teachers and school administrators are pressured to produce quality students, while principals are further faced with the pressures of constantly improving province wide testing scores and running a safe and productive school. Schools nowadays are often bombarded with a vast array of programs, some of which are mandated by the government. This problem forces administrators to pick and choose programs that they believe will be more productive which often results in the elimination of those programs that are not mandated by the government (Fullan, p.87, 2001).

The results from these studies indicate that in order for an innovation to be implemented, it must be supported and accepted by its implementers, it must not require too many resources in order for it to be used, the teachers must feel confident in their abilities to implement it, and they must be properly trained to use it. Finally, if innovative programs have any chance of being used, the political climate of the organization and the climate within the schools themselves must be taken into consideration. Although these recommendations have been quite effective in the past, they do not guarantee that the program will become a regular part of the school activities. In order for an innovation to be institutionalized into an organization, it must be used often and frequently.

The Heart and Stroke Foundation of Ontario has addressed the implementation process by offering training sessions to pre-service teachers at many faculties of education throughout Ontario and to teachers at in-service workshops. These workshops teach teachers how to use the HHKT in the classroom.

Maintenance stage

Steckler et al. (1992) explained that maintenance is "the attainment of long-term viability and integration of innovations within organizations". In order for a program "to become integrated into an organization's subsystems [it must go] through three stages: passages, routines, and niche saturation" (p. 220).

Passages represent "an incipient degree of institutionalization" where a passage is "a formal transition from one organizational state to another . . . in procedure or structure" (Steckler & Goodman, 1989) such as when a program shifts from outside funding to local funding or when the procedures of a program become formalized. "Passages tend to occur only once [within that organization, which] signify that the innovation is becoming a stable part of the organization" (Steckler & Goodman, 1989).

Routines on the other hand, are "characteristics of an innovation's increasing permanence. When an innovation becomes routinized, it no longer stands out as new. A routinized innovation has survived a number of organizational cycles such as school years, budgeting cycles, and turnover of staff" (Steckler & Goodman, 1989). Steckler & Goodman (1989) explain that cycles are "an organizational event that occurs repeatedly during the lifetime of an organization . . . [therefore] the more cycles that an innovation survives, the more routinized it may be regarded". In their study, Steckler and Goodman (1989) stated that programs that survived four or less passages and cycles were regarded as having a low level of institutionalization, while those that survived five to eight passages and cycles were moderately institutionalized. Any program that survived nine to eleven passages and cycles were equally moderately high, while those that survived over twelve passages and cycles were highly institutionalized.

"Niche saturation is the final degree of program institutionalization. It is defined as the maximum feasible expansion of an innovation within an organization" (Steckler et al., 1992).

Therefore, a program that is fully institutionalized is one that is used in every feasible grade level, in every school in a district, and is supported by all of the teachers and administrators of the school.

This study will not attempt to evaluate the maintenance phase as its primary focus.

Criticisms of diffusion research

Even though research in the area of diffusion of innovative programs (subsequently referred to as diffusion research) is making impressive contributions to our understanding of human behaviour change, Rogers (1995) stated that there are still a number of critics and organizations who contend that diffusion research is not all that impressive.

For example, according to Rogers (1995), these critics believe diffusion research has led to a *pro-innovation bias*. Pro-innovation bias is "the implication in diffusion research that an innovation should be diffused and adopted by all members of a social system, that it should be diffused more rapidly, and that the innovation should be neither re-invented nor rejected" (p.100). In other words researchers imply that if an innovation is to be implemented it should follow the "all or none principle" and that most diffusion research is spent looking at successful diffusion studies rather than learning from studies that have failed. As a result of the pro-innovation bias, "we know much more (1) about the diffusion of rapidly spreading innovations than about the diffusion of slowly diffusing innovations, (2) about adoption than about rejection, and (3) about continued use than about discontinuance" (Rogers, 1995, p.105).

A second criticism of diffusion research is known as individual-blame bias. As the name implies, individual-blame bias is "the tendency to hold an individual responsible for his or her problems, rather than the system of which the individual" belongs to (Rogers, 1995, p.118). In other words the individual-blame bias is the tendency for researchers to blame the individual for the failures of the innovation rather than the system the individual belongs to. There are three

main reasons why individual-blame biases arise in diffusion research. First, diffusion researchers have a tendency to accept a definition of the problem according to the sponsors who are funding it. Therefore if the sponsors have a biased opinion about the innovation, researchers will most likely take this same point of view. Secondly, many researchers find it hard, if not impossible, to change system-blame factors, therefore taking sides with the more favourable individual-blame factors. Finally "individuals are often more accessible to diffusion researchers as objects for study than are systems, and the research tools of most diffusion investigators lead them to focus on individuals as units of analysis" (Rogers, 1995, p. 119) simply because they are more convenient and available than system tools.

Finally the recall problem also generates substantial criticism. "The recall problem in diffusion research [is] caused by inaccuracies when respondents are asked to remember the time at which they adopted a new idea" (Rogers, 1995, p. 129). The biggest criticism is that diffusion research has the tendency of relying on "snapshots" rather than on "moving pictures" of the behaviour. The work of Rogers (1995) and Bandura (1986) provide a better understanding of some of the factors that affect use of an innovative program. The concerns-based adoption model (CBAM), on the other hand, allows for the opportunity to develop an understanding of how an individual responds to change and how they adapt to meet its demands.

The concerns-based adoption model (CBAM)

The CBAM was developed through research and observations conducted in the early 1970's. It was originally proposed by Hall, Wallace, & Dossett in 1973 (Hall & Hord, 1987) who believed that in order for a teacher to become sophisticated and skillful in using an innovation they must move through a set of developmental stages and levels. These stages and levels combine to formulate the CBAM. As depicted in figure 2, the CBAM is a unique approach to describing the change process and how individuals undergo change. It is based on the belief that

in order for change to occur, change facilitators like school principals, must concentrate their actions and decisions on the needs of their "clients" (i.e. the teachers), rather than on their own personal desires. They must then concentrate on learning how these needs grow over time. As Figure 2 depicts in order for change to occur, users of an innovation (i.e. teachers) and their change facilitators (i.e. principals) must take into consideration the stages of change, levels of use and innovation configurations.

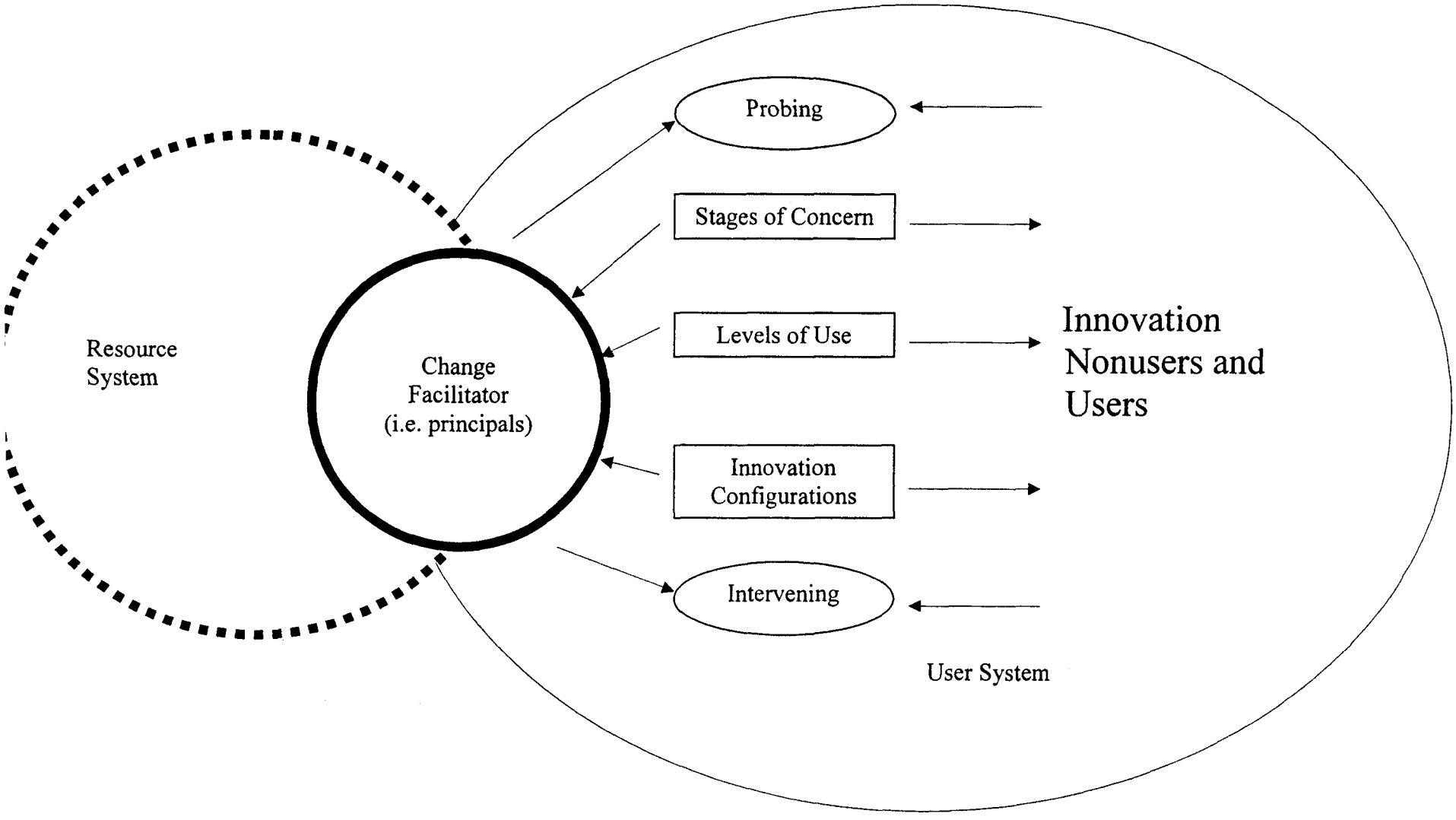

Figure 2. The concerns-based adoption model.

Concerns-based adoption model (CBAM) assumptions

The CBAM is based on the following assumptions about change:

1. **Change is a process, not an event.** One of the most common misconceptions about change is to believe that it is an event. This of course is not the case as "more recently, it has become clear, especially through CBAM research, that there is a process involved in implementing educational innovations and that this process requires time" (Hall & Hord, 1987, p. 9). Roberts & Roberts (1986) stated that in order for an innovation to be implemented, a three to five year time period is usually required. Fullan (2001) also stated that "implementation for most changes, takes 2 or more years; only then can we consider that the change has really had a chance to become implemented" (p. 52).

2. **Change is accomplished by individuals.** Change is not an ambiguous, impersonal process. "Individuals must be the focus of attention in implementing a new program. Only when each (or almost each) individual in the school has absorbed the improved practice can we say that the school has changed" (Hord, Rutherford, Huling-Austin & Hall, 1987, p. 6).

3. **Change is a highly personal experience.** No two individuals respond or behave to change in the same way, therefore in order for change to be a success the needs and abilities of the individual user must be taken into account, afterall "change will be most successful when its support is geared to the diagnosed needs of the individual users" (Hord et al., 1987, p. 6).

4. **Change involves developmental growth.** "CBAM research has shown that individuals involved in the change process move through identifiable stages in their feelings about a new program and also in identifiable skill levels as they use a new program" (Roberts & Roberts, 1986, p. 108). In other words, as people become more experienced with a new program, their feelings and skills improve. For example, at the beginning of the change process the typical "nonuser" is more concerned with learning more about the innovation and how it will affect them

personally. As they become skilled and experienced with it, their concerns shift from a self-directed stance to an impact-oriented focus.

5. **Change is best understood in operational terms.** There is a greater chance that change will occur smoothly and with less resistance, when teachers have a better understanding of the time commitments that are required in order for it to occur and the specific changes that will occur in their and their students' values, beliefs, and behaviours.

6. **The focus of facilitation should be on individuals, innovations, and the context.** "The real meaning of any change lies in its human, not its material component" (Hord et al., p.6, 1987), therefore in order for change to occur, those individuals who are responsible for implementing it must change their behaviour.

Concerns-based adoption model (CBAM) dimensions

In order to plan, facilitate, monitor, and evaluate change, three dimensions of the CBAM have been developed. These dimensions include the stages of concern (SoC), levels of use (LoU), and innovation configurations (IC). They "represent key aspects of the change process as it is experienced by [the] individual user" (Hall & Hord, 1987, p. 13).

The **stages of concern (SoC)** dimension "addresses how teachers or others perceive an innovation and how they feel about it" (Hall & Hord, 1987, p. 13). This dimension is of utmost importance as it is these perceptions that "will in large part determine whether or not change actually occurs in the classroom" (Hall & Hord, 1987, p. 53). Table 1 describes the seven stages of concern that an individual may have as they use or are about to use an innovation. Concerns "refer to the feelings, thoughts, and reactions individuals have about a new program or innovation that touches their lives" (Hall & Hord, 1987, p. 30).

Table 1: Stages of Concern (SoC)

Stage	Type		Description
0	S	**Awareness-**	"Little concern about or involvement with the innovation is indicated".
1	E	**Informational-**	A general awareness of the innovation and interest in learning
	L		more detailed about it is indicated. The person seems to be
	F		unworried about himself/herself in relation to the innovation".
2		**Personal-**	"Individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and his/her role with the innovation".
3	T	**Management-**	"Attention is focused on the processes and tasks of using the
	A		innovation and the best use of information and resources. Issues
	S		related to efficiency, organizing, managing, scheduling, and time
	K		demands are utmost".
4	I	**Consequence-**	"Attention focuses on impact of the innovation on student in his/her
	M		immediate sphere of influence".
5	P	**Collaboration-**	"The focus is on coordination and cooperation with others
	A		regarding use of the innovation".
6	C	**Refocusing-**	"The focus is on exploration of more universal benefits from the
	T		innovation, including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about to be proposed or existing form of the innovation".

Note. These stages have been adapted from Hall & Hord, 1987 pp. 56-61.

According to the stages of concern (table 1) as a teacher becomes more experienced and skilled with using an innovation, the intensity of their concerns shifts from self-oriented (stages

0, 1, & 2 see table 1), to task-oriented (stages 3 see table 1), and finally to impact-oriented concerns (stages 4, 5, & 6 see table 1). A person in stages 0, 1, or 2 is concerned with learning more about the innovation and how it relates to what they are currently doing. Teachers in this stage may also be concerned with how the innovation affects them personally. As the teacher becomes more comfortable using the innovation they will express task-oriented concerns (stage 3). Concerns about time management and organization are the most intense during this stage. When the teacher's concerns relate to the impact the innovation may have on their students, or how they can improve its effectiveness personally, they are expressing impact-oriented concerns (stage 4, 5, or 6). While it is important to understand the characteristics of these stages, it is also important to understand that they are not mutually exclusive, as "typically, teachers will not have concerns at only one of these stages but a combination of concerns reflected in two or more stages that are relatively more intense than their own concerns" (Hall & Hord, 1987, pp. 59-61).

"One of the most common and serious mistakes administrators and change facilitators make is to presume that once an innovation has been introduced and initial training has been completed, the intended users will put it into practice" (Hord et al., 1987, p. 54). This of course is not always the case as many programs, despite being properly diffused into an organization's subsystem, are never even put into use. In order to prevent this assumption from occurring, Hall, Loucks, Rutherford & Newlove (1975) developed the **levels of use (LoU)** dimension (see table 2). This dimension "can serve as a valuable diagnostic tool for planning and facilitating the change process [as it] . . . focuses on the behaviors that are or are not taking place in relation to the innovation" (Hall & Hord, 1987, p. 81). The "Levels of Use (LoU) dimension describes the behaviours of the users of an innovation [by] attempt[ing] to define operationally what the user is doing" (Hord et al., 1987, p. 54). Therefore, the level of use dimension was developed to evaluate how extensively an innovation is being used. According to Fullan (2001) the quality and

practicality of the innovation affect its use in the classroom. Enhancing the quality and practicality of the innovation, by spending more time getting to know it and the materials it requires, will result in greater levels of its use. Hall et al. (1975) developed eight different levels for assessing how extensively an innovation is used (table 2).

Table 2: Hall, Loucks, Rutherford & Newlove (1975) Level of Use Chart

Level	Description
0 **Non-Use-**	"User has little or no knowledge of the innovation, no involvement with the innovation and is doing nothing towards being involved with the innovation".
1 **Orientation-**	"User has recently acquired or is acquiring information abut the innovation and/or has recently explored or is exploring its value orientation and its demands upon user or user system".
2 **Preparation-**	"User is preparing for first use of the innovation".
3 **Mechanical-**	"User focuses more on the short-term, day-to-day use of the innovation".
4A **Routine-**	"Use of the innovation is stabilized".
4B **Refinement-**	"User varies the use of the innovation to increase the impact on clients within immediate sphere of influence".
5 **Integration-**	"User is combining own efforts to use the innovation with elated activities of colleagues to achieve a collective impact on clients within their common sphere of influence".
6 **Renewal-**	"User reevaluates the quality of use of the innovation, seeks major modifications of or alternatives to the present innovation to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system".

Note. This table has been adapted from Hall, Loucks, Rutherford & Newlove, 1975.

Like the stages of concern, as a person becomes more familiar with an innovation their level of use may shift from nonuse (level 0) to renewal (level 6). This study will assess the levels of use dimension through 16 true/false statements that were taken from Steckler et al. (1992) who developed a 22-item questionnaire that was based on the work of Loucks, Rutherford, Newlove & Hall (1975).

The last dimension of the CBAM is **innovation configurations (IC)**. Innovation configurations (IC) were developed after researchers realized that the various parts of an innovation can be used in many different ways. Innovation configurations were developed by Hall & Loucks in 1981 to describe the various operational patterns that an innovation can take when it is put into use. For example, many of the components in the HHKT can be used in subjects other than health (e.g. the stethoscope can be used to teach a science lesson on the heart) and in different ways. Innovation configurations would seek to learn how these different components are used. This is done through an IC component checklist. The IC component checklist was developed by Heck, Stiegelbauer, Hall & Loucks in 1981 to identify "specific components or parts of an innovation and the variations that might be expected as the innovation is put into operation in classrooms or schools" (Hord et al., 1987, p. 15-16). Variations "represent the different ways in which a teacher can put a component into operation in the classroom" (Hord et al., 1987, p. 14.). "Generally, you will find three to five variations, although in some cases only two variations will exist (as in the case when something is or is not present). Occasionally you may identify more than five variations within a component" (Hord et al, 1987, p. 16). The data generated from this checklist can be used in many different ways. For example, two particularly useful ways are to organize it by individual user and by innovation components. When individual users organize the IC data it enables the implementers the opportunity to identify the type of assistance that would be more valuable for specific students. When it is

organized by innovation components it makes it possible to identify the components that are used most successfully and the ones that still require more time and attention from its users (Hord et al., p.161987).

The present study will use the CBAM model to assess the level of use, the extent of use, and the level of implementation of the HHKT. It will also take a look at the teacher's level of awareness, concern, and interest for the health and physical education discipline.

Summary

The literature written in the area of diffusion of innovations is quite extensive. This chapter outlines some of this information. It began with a discussion of the Heart and Stroke Foundation, the HHKT, its dissemination strategies, and the results from two studies that have evaluated its use in the classroom. It then discussed the theoretical background of the diffusion process and the results from studies that have tested it. More specifically, the work of Rogers' (1995) diffusion of innovation, Bandura's (1986) social cognitive theory, and Hall, Wallace and Dossett's (1973) concerns-based adoption model (CBAM) were discussed in this chapter. Fullan's (2001) work on the behaviour change process and four prominent criticisms of diffusion research were also highlighted in this chapter.

CHAPTER 3

Methodology

This chapter addresses the steps that were undertaken in order to execute this study. It has been divided into four sections; 1) population size and the participants involved in the study; 2) data collection methodology; 3) procedural steps used to conduct the study; and, 4) statistical steps taken to analyze the data.

This study evolved from a personal interest in exploring the current health status of our younger generation and realizing the need for developing effective educational resources in order to enhance their level of involvement in physical activity.

Participants

In February 2003, the Heart and Stroke Foundation of Ontario sent the researcher a spreadsheet containing the names of all the Ontario elementary schools who received a copy of the HHKT during the 2001/02 school year. This list determined that 38 of the 50 elementary schools from the public (25/30) and the separate (13/20) school boards within the City of Thunder Bay had received a copy of the HHKT during the 2001/02 school year. However, in 2002 one of the public schools identified in this list had permanently closed its doors, therefore they were not involved in this study. Furthermore, one school from the public school board and two schools from the separate school board who were identified on the list did not send any completed surveys to the researcher and were therefore not included in the final data analysis.

The final sample consisted of 23 public elementary schools and 11 separate elementary schools respectively, representing 75% and 55% of the total number of elementary schools who received the HHKT from the public and separate school boards in Thunder Bay. To ensure adequate representation of the total population, all of the kindergarten to grade eight teachers along with any French teachers and special education teachers from each of the 34 public and

separate elementary schools in Thunder Bay who agreed to be involved in this study were surveyed. French teachers and special education teachers were included in this study as it is believed that some of them may in fact be aware of and even use the HHKT in their classroom.

Data collection methodology

In order to gather information about teacher's awareness, adoption, and implementation of the HHKT and the factors that affect its use in the classroom, a self-report survey questionnaire was created. The statements within the questionnaire are to be considered as indicators of the underlying constructs. They are considered to have construct validity as they have all been adapted from the work of previous researchers, who have developed instruments within existing theories (Brink et al., 1991; Hall, Wallace & Dossett, 1973; Martin & Kulinna, 2003; Parcel et al., 1989; Parcel et al., 1995; Steckler et al., 1992). These theories include Rogers' (1995) diffusion of innovations and Bandura's (1986) social cognitive theory. Hall, Wallace & Dossett's (1973) concerns-based adoption model (CBAM) was used to determine the level of use of the HHKT and the teacher's awareness, concern, and interest for it. Each construct had reported Cronbach alpha's between 0.62 and 0.88 and factor loadings in the range of 0.45 and 0.89. Each statement was selected from the literature based on the following criteria:

1. They were all relevant to the constructs identified in the study.
2. When available, all but one (interest construct- α=0.62) of the constructs produced internal consistency reliability (Cronbach's alpha) scores that were above the acceptable 0.70 score (Nunally, 1979); or,
3. When available, they produced factor loadings that were all above the acceptable 0.40 value (Safrit & Wood, 1989).

The survey consisted of open-ended questions and closed-ended statements that included sociodemographic-related items, checklist items, scale-type items using a 5-point Likert scale

and true/false items. Thirty-two positively worded statements and 22 negatively worded statements were created for the 10 constructs used in the HHKT survey. These constructs were: teacher training; awareness, concern and interest for the health and physical education discipline; characteristics of the innovation (relative advantage, compatibility, complexity, and observability); organizational climate; implementation self-efficacy; health and physical education teachers physical activity self-efficacy; and, the political climate of the current education system.

The survey was divided into three sections. Section A consisted of 8 questions that gathered personal information about each of the participants. Items addressed in this section included: 1) gender; 2) age; 3) years of teaching experience; 4) grade(s) currently teaching; 5) if they have a specialization in the health and/or physical education discipline (if yes, they were then asked to identify this specific specialization); 6) if they are responsible for teaching health and physical education to their students or to other students in their school; and, 7) if they use curriculum resources to help teach health and physical education (if so, they were asked to identify the resources they have used). Teaching experience was based on the number of full time and/or part time years served. Experiences as an occasional teacher were not included in the final calculation of years served simply because occasional teachers are less likely to be with the same class for extended periods of time, thus limiting the probability that they will effectively use the HHKT. Awareness was measured by asking each teacher to indicate if they had heard about the HHKT. If they have never heard of the HHKT they were instructed to return the survey, as they were unable to provide accurate responses to the remaining statements. If they have heard about the HHKT, they were asked to indicate if they knew where in their school it could be found (if they answered yes, they were then asked to identify its location); to identify their primary and secondary sources of information about the HHKT, in which case a 12-item

checklist was employed; and, to indicate if they had participated in a training workshop that may have prepared them to use the HHKT (if they answered yes, they were then asked to indicate the type and duration of the training they had received).

Section B consisted of 54 statements grouped into six categories: characteristics of the innovation; organizational climate; awareness, concern, and interest for the health and physical education discipline; perceived implementation self-efficacy; teaching physically active physical education perceived self-efficacy; and, the political climate of the existing education system. A 5-point Likert scale ranging from "1= strongly disagree" to "5= strongly agree" was used. In order to produce a final score for each of these constructs, the scores of the negatively worded statements were reversed and averaged with the remaining positively worded statements. The first construct addressed the four characteristics (relative advantage, complexity, compatibility, and observability) that Rogers & Shoemaker (1971) identify as most likely to influence a person's decision to adopt an innovation. The statements used to assess the relative advantage, complexity, and observability of the HHKT were adapted from Steckler et al. (1992) who developed a series of statements consistent with Rogers' (1995) adoption questionnaire.

Table 3 identifies the four statements that were used to assess the relative advantage of the HHKT. Relative advantage is "the degree to which an innovation is perceived as better than the idea it supersedes" (Rogers, 1995, p. 15). It is believed to be important as individuals who view an innovation as more superior than existing ones are more likely to use it. These statements have a reported internal consistency score (Cronbach's alpha) of 0.88 and factor loadings of 0.81, 0.84, 0.85 and 0.84, respectively.

Table 3: Relative Advantage of the HHKT

	Statement	Questionnaire #
1.	The HHKT would help to improve the overall quality of health and physical education teaching in this school.	15
2.	The HHKT would make teaching health and physical education more effective.	40
3.	In general, the HHKT would be less effective in creating attitudes that encourage heart healthy behaviours than our current curriculum practices.	32*
4.	The HHKT would not be more effective in increasing heart healthy behaviours among students than our current curriculum practices.	52*

Note. Those statements with an (*) are negatively worded.

Table 4 identifies the four statements used to assess the teacher's feelings about the compatibility of the HHKT with programs and practices they are accustomed to. Generally speaking, if an innovation is not consistent with what is currently taking place in the school then it is less likely to be used. Internal consistency values for the statements taken from Parcel et al. (1995) were 0.78 for the entire construct. Internal consistency scores were not reported in their study (Parcel et al. 1989), while factor loadings were not available for any of these statements.

Table 4: Compatibility of the HHKT

Statement	Questionnaire #
Adapted from Parcel et al. (1995)	
1. The HHKT would fit in well with my teaching style.	21
2. It is the right time for me to use the material in the HHKT to assist me in teaching my health and physical education lessons.	55
3. There are too many other priorities in my school that affect the amount and quality of health and physical education that my students receive.	36*
Adapted from Parcel et al (1989)	
4. In my opinion, the HHKT would interfere with the current health and physical education curriculum.	44*

Note. Those statements with an (*) are negatively worded.

The third characteristic that affects whether an innovation is used in the classroom is complexity. Table 5 lists the three statements that evaluated whether the teacher felt the HHKT is easy to use and to understand. It is believed that if an innovation is too difficult to use and understand it will not be implemented in the classroom. These statements have an internal consistency value (Cronbach's alpha) of 0.83 and reported factor loadings of 0.81, 0.75 and, 0.68, respectively.

Table 5: Complexity of the HHKT

Statements	Questionnaire #
1. The HHKT would not be difficult to use.	58
2. The HHKT does not require complex teaching strategies.	25
3. The material in the HHKT would be hard for teachers to understand.	48*

Note. Those statements with an (*) are negatively worded.

Observability is the last characteristic included in the survey. Table 6 identifies the two statements that were used to determine if the teacher felt the HHKT produced results in their students' health behaviours that were easy to detect. Generally speaking, if an innovation does not produce results that are easy to see, then it is less likely to be used. Statement one was adapted from Steckler et al. (1992) who adapted it from Rogers' (1995) adoption questionnaire. It had a reported factor loading of 0.79 (Steckler et al. 1992).

Table 6: Observability of the HHKT

	Statement	Questionnaire #
1.	The HHKT's impact on my students' health behaviour would be readily observable.	66
2.	Students will enjoy learning with the HHKT.	60

The second construct addressed in section B was organizational climate. Organizational climate is the general feelings and attitudes of the members of an organization related to one another and to their organization. Included in this contextual variable is the person's satisfaction with their job, their administrators, and their involvement in decision making processes (McCormick et al., 1995; Steckler et al., 1992). More specifically, schools whose principals support implementation of the HHKT, whose teachers are satisfied with their jobs and their administrators, and who feel that they are involved in the decisions regarding school policy and practice will lead to greater levels of HHKT implementation. These statements (Table 7) were adapted from Steckler et al. (1992) who used Litwin & Stringer's (1966) and Taylor & Bowers' (1972) work to develop a 27-item questionnaire. Nine statements with the highest factor loadings were selected for this study. These factor loadings were 0.68, 0.71, 0.75, 0.82, 0.77, 0.73, 0.60, 0.63 and, 0.68, respectively (Steckler et al., 1992).

Table 7: Organizational Climate of the School and the School Board

	Statement	Questionnaire #
1.	We are encouraged to speak our minds, even if it means disagreeing with our administrators.	19
2.	In this school board, decisions are made at those levels where the most adequate and accurate information is available.	30
3.	When decisions concerning health and physical education are being made, persons affected by them are not asked for ideas.	34*
4.	My school board has a real interest in the welfare and happiness of those who work here.	38
5.	Those above me are not receptive to my ideas and suggestions.	42*
6.	My school board tries to improve its working conditions.	46
7.	When I have a difficult assignment I can usually count on getting assistance from my principal.	13
9.	You don't get much sympathy from higher ups in this school board if you make a mistake.	23*
10.	Administrators at my school make an effort to talk with us about our career aspirations.	27

Note. Those statements with an (*) are negatively worded.

The third category consisted of 11 statements that looked at the level of awareness, concern, and interest each teacher has towards the health and physical education discipline (Table 8). According to the stage theory of organizational change, if an organization (i.e. a school) is not aware that a problem exists, that a solution is possible, and that their organization should do something about it, then the innovation is less likely to be used. These statements have

been adapted from Steckler et al. (1992) which were subsequently taken from the work of Hall, George & Rutherford (1979) and Hall, Wallace & Dossett (1973) who developed a concerns-based adoption model (CBAM). Reported internal consistency (Cronbach's alpha) scores for the awareness, concern, and interest statements were 0.76, 0.72 and, 0.62, respectively, and each statement had a factor loading of 0.57, 0.70, 0.52, 0.69, 0.57, 0.45, 0.57, 0.55, 0.68, 0.77 and 0.72, respectively (Steckler et al 1992).

Table 8: Awareness, Concern, and Interest for the Health and Physical Education Discipline

	Statement	Questionnaire #
Awareness for health and physical education		
1.	I don't know what a quality health and physical education curriculum is.	14*
2.	I am aware of curricula that addresses health and physical education.	28
3.	I cannot distinguish between different curricula which addresses health and physical education.	39*
4.	I know the status of quality health and physical education in my school board.	47
Concern for health and physical education		
5.	I don't believe quality health and physical education is so important.	20*
6.	I am concerned about a quality health and physical curriculum in my school.	31
7.	I am not certain why some individuals consider quality health and physical education important.	43*
8.	I know why quality health and physical education is so important for schools to address.	50

Table 8 (continued): Awareness, Concern, and Interest for the Health and Physical Education Discipline

	Statement	Questionnaire #
Interest for health and physical education		
9.	I am interested in more information on the time and energy commitments that a quality health and physical education curriculum would require.	24
10.	I am not interested in learning more about quality health and physical education curricula.	35*
11.	I would like to explore the possibility of improving quality health and physical education in my school.	54

Note. Those statements with an (*) are negatively worded.

The fourth construct included in the HHKT survey consisted of two statements (Table 9). These statements dealt with the teacher's perceived implementation self-efficacy. Perceived self-efficacy is an "individual's personal judgement of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with judgements of what one can do with whatever skills one possesses" (Bandura, 1986, p. 391). Therefore, there is a greater chance that the HHKT will be used if teachers feel confident in their abilities to use it and to use it as it was intended to be used. The statement that was taken from Brink et al. (1991) produced an internal consistency score (Cronbach's alpha) of 0.87 for the construct, while there were no internal consistency values available for Parcel et al. (1995). There were no factor loadings available for any of these statements.

Table 9: Perceived Implementation Self-Efficacy of the Respondents towards the HHKT

Statements	Questionnaire #
Adapted from Brink et al. (1991)	
1. I am not confident that I can use the HHKT material effectively in the classroom.	17*
Adapted from Parcel et al. (1995)	
2. I am confident that I can effectively teach HHKT instructional materials.	62

Note. Those statements with an (*) are negatively worded

The fourth and final category consisted of 17 statements (Table 10) that assessed the respondents perceived self-efficacy for teaching physically active physical education lessons. They were adapted from Martin & Kulinna (2003). Generally speaking, teachers who feel more confident that they can teach physically active health and physical education classes would be more likely to use the HHKT. Table 11 identifies the internal consistency and factor loadings for each of the four constructs and the 17 statements that were used.

Table 10: Teacher's Perceived Self-Efficacy for Teaching Physically Active Physical Education Lessons

	Statements	Questionnaire #
Student		
1.	My students enjoy being physically active during my health and physical education classes.	59
2.	My students do not enjoy spending large amounts of health and physical education class time being physically active.	18*
3.	My students highly value health and physical education.	49
4.	My students are not concerned with being physically active.	33*
Institution		
5.	Administrators at my school provide adequate support for health and physical education.	45
6.	Administrators at my school rarely cancel my health and physical education classes.	64
7.	I do not have enough health and physical education equipment for all of my students to be physically active at the same time.	57*
8.	Other teachers at my school do not highly value health and physical education.	29*
9.	Parents in my community consider health and physical education important.	65

Table 10 (continued): Teacher's Perceived Self-Efficacy for Teaching Physically Active Physical Education Lessons

	Statements	Questionnaire #
Time		
10.	My students do not receive enough health and physical education classes per week.	41*
11.	I have too little health and physical education contact time with my students.	56*
12.	I have enough time in the year to effectively teach quality health and physical education to my students.	63
13.	My health and physical education class sessions are not too short in duration.	26
Space		
14.	I have enough space for all of the students in my health and physical education class.	53
15.	The space I use for my health and physical education classes is used for other purposes.	22*
16.	I have too many students in my health and physical education class.	37*
17.	When I am teaching health and physical education to my students there is more than one class sharing the gymnasium (activity facility).	61*

Note. Those statements with an (*) are negatively worded.

Table 11: Factor Loadings and Internal Consistency (Cronbach's alpha) Values for the Perceived Self-Efficacy of Teaching Physically Active Physical Education Lessons Construct

Construct	Cronbach's Alpha	Questionnaire #	Factor loading
Student	0.86	59	0.84
		18	0.62
		49	0.89
		33	0.77
Institution		65	not available
	0.73	45	0.57
		64	0.75
		57	0.74
		29	0.59
Time	0.78	41	0.73
		56	0.55
		63	0.69
		26	0.59
Space	0.75	53	0.69
		22	0.67
		37	0.73
		61	0.66

The last construct that was included in section B of the HHKT survey dealt with the political climate of the existing education system. These statements were included as it is believed those things that are out of the control of the teacher and of the school (i.e. provincial testing, provincial funding, curriculum standards, pressures of the jobs, etc.) will affect

implementation (Fullan, 2001). These statements (Table 12) were created based on the suggestions from three professionals in the field resulting from the pilot test.

Table 12: Political Climate of the Current Education System and its Influence on Teaching Health and Physical Education

	Statement	Questionnaire #
1.	There is inadequate time to effectively teach health and physical education because of mandated provincial testing in other subjects.	51*
2.	The recent provincial emphasis on literacy and numeracy has decreased the time and resources devoted to health and physical education in my school board.	16*

Note. Those statements with an (*) are negatively worded.

Table 13 identifies the 16 true/false statements (Section C), along with the levels they were placed into. These statements were used to determine the level of use of the HHKT. Each statement was taken from Steckler et al. (1992) who developed a 22-item questionnaire that was based on the work of Loucks, Rutherford, Newlove & Hall (1975). To score this construct each of the individual scores, which are created by summing all of the "true" responses, were categorized into one of five levels (Table 14). These levels were created by Steckler et al. (1992) who adapted them from the eight different levels of use that Loucks, Rutherford, Newlove & Hall (1975) constructed. This score produced an ordinal variable that ranged from 0 to 4. The mean score from the three ordinal variables (i.e. discussing and sharing the curriculum, assessing the curriculum, and current use of the curriculum) was used to determine the overall level of use.

Table 13: Level of Use of the HHKT

	Statement	Level of Use	Questionnaire #
Discussing and Sharing the Curriculum			
1.	I have not communicated with others about the HHKT (beyond simply acknowledging that it exists).	0	67
2.	I have discussed with others the HHKT in general terms to better understand what it is like or how it might work.	1	73
3.	I have participated in pre-use training or planning for resources, logistics, scheduling, etc., in preparation to begin using the HHKT.	2	81
4.	I have discussed with others the actual sharing of resources e.g. personnel, materials, time schedules, etc.) in order to use the HHKT.	3	70
5.	I have discussed with others ways I might use the HHKT in order to enhance health and physical education student expectations.	4	76
Assessing the HHKT			
6.	I have taken no action to analyze what the HHKT is like or how it is used.	0	77
7.	I have analyzed content and material from the HHKT in order to make a decision about whether or not to use it.	1	68

Table 13 (continued): Level of Use of the HHKT

	Statement	Level of Use	Questionnaire #
8.	I have assessed, in detail, the requirements and available resources for the initial use of the HHKT.	2	74
9.	I have assessed my own use of the HHKT with respect to problems of logistics, management, scheduling, resources, and general reaction of students.	3	80
10.	I have assessed the use of the HHKT in my classroom for the purpose of enhancing student learning expectations.	4	71
Current use of the HHKT			
11.	I am not at all involved, nor have I been involved with the HHKT during this school year.	0	72
12.	I am currently learning or have learned about what the HHKT is and is not.	1	79
13.	I am currently preparing or have prepared myself in order to begin using the HHKT.	2	69
14.	I have already begun to use the HHKT.	3	82
15.	At this time, my personal use of the HHKT is going along on a smooth and routine basis.	4	75

Table 13 (continued): Level of Use of the HHKT

	Statement	Level of Use	Questionnaire #
16.	I am currently varying my use of the HHKT specifically to produce better student health and physical education learning expectations.	4B	78

Table 14: Descriptions of the Levels of Use Construct

Level	Description
0	**Non-Use**- User has little or no knowledge of the innovation.
1	**Very Low Use**- User has recently acquired information about the innovation and is preparing to use it.
2	**Low Use**- User is learning to use the innovation.
3	**Moderate Use**- User routinely uses the innovation and begins to refine it.
4	**High Use**- User integrates innovation with other activities and reevaluates its quality in order to enhance its effectiveness.

HHKT implementation was also assessed through a categorical yes/no question, while the extent of use was assessed through a HHKT content checklist, in which case the teacher was also asked to identify the number of times each activity was used during the last school year (Appendix A).

Procedure

After receiving ethical approval from Lakehead University's Ethics Review Board (Appendix B) and the participating school boards (Appendix C), a pilot study was conducted to assess the clarity, length, readability, and comprehensiveness of the survey. Five elementary school teachers and three research professionals were involved in this project. Based on their

recommendations, minor revisions were made to the survey. None of these individuals were involved in the final study.

Before any surveys were distributed, the researcher contacted the principals from each of the schools and asked if they would like to participate in the study. Three principals decided not to be involved in the study citing that their teachers were already bombarded with a number of other commitments including report cards, and planning field trips for their class. As soon as approval was granted from the remaining principals, the researcher asked them to identify the total number of kindergarten to grade eight teachers including any French teachers and special education teachers on their staff. Data collected from any French teachers and special education teachers were eventually discarded as it was decided these teachers did not spend enough time with a single class to accurately comment on the HHKT.

Five hundred and twenty-nine kindergarten to grade eight teachers from 34 of the 50 elementary schools involved in the study were given a survey, a cover letter (appendix D), and a return envelope. They were hand-delivered to the principals between June 6-10, 2003. All principals were asked to distribute the surveys at the beginning of the week as surveys that are delivered at the beginning of the week often generate greater response rates (Rubinson & Neutens, 1987). All participants were asked to respond to each of the items included in the survey and to return it, in a sealed envelope, to either the secretary at Oliver Road School via the school boards courier service, or to fax it directly to the researcher by June 20, 2003. Informed consent was implied with the return of a completed survey. Teacher anonymity was ensured, as their names were not requested. All schools were coded and their names remained confidential. Each teacher was informed that only the supervisor, Dr. Medhat Rahim, and the researcher would have access to the data, and that all of the data would be stored in Dr. Rahim's office for seven years.

A reminder postcard was sent to the principals on June 12, 2003. They were asked to post this notice onto the staff mailbox for their teachers to see. On June 19, 2003 the researcher phoned the principals once again and requested that a reminder bulletin be included in their schools weekly memo. Thank you cards were also sent to each principal on June 19, 2003, thanking those teachers who took the time out of their busy schedule for completing the survey. The researcher visited Oliver Road School twice a week to collect any completed surveys.

Data collection

Data collection began on June 6, 2003 and teachers were initially given until June 20, 2003 to return a completed survey, however due to the poor delivery date all of the teachers were given an additional week to respond to the survey. Upon consultation with each principal it was determined that every survey was distributed to the appropriate staff member and that all staff members were made aware of the survey and asked to complete it.

Data analysis

The Statistical Package for the Social Sciences (SPSS) Version 11.0 was used to analyze all of the quantitative data for this study. Data entry began on July 23, 2003 and was completed by the end of August of 2003. Descriptive statistics for all of the constructs including the mean and standard deviation were calculated. Internal consistency (Cronbach's alpha) scores were calculated for each of the ten constructs identified in the survey. To determine if the HHKT was actually being used by the teachers, frequency distributions were produced, while χ^2 statistics were calculated to determine the variables most commonly associated with HHKT awareness and implementation. Correlation analysis was used to determine if a relationship between the level of use and the extent of use existed. Logistic regression was used to determine predictors of awareness and implementation.

CHAPTER 4

Results

Five hundred and thirty-four surveys were hand delivered to 23 public (364 surveys) and 11 separate (169 surveys) elementary schools throughout the City of Thunder Bay during the week of June 6-10, 2003. One hundred and twelve of them were returned (n=112) by the June 26th deadline for a response rate of 21%. Five ineligible surveys were discarded as the respondents were not regular classroom teachers. The final response rate for this study was 20% (n=107). Eighty-one (76%) of the completed surveys were collected from the public elementary school board, while twenty-six (24%) of them came from the separate elementary school board. These values are representative of the survey distribution amongst the two school boards (68% and 32% respectively). The response rate from the public school board and the catholic school board were 22% and 16% respectively.

Section A: Descriptive Statistics

Sample

School staff size ranged from six to 30 teachers with a mean of 15.7 teachers. The final sample distribution was 82% female and 18% male. One respondent chose not to identify their gender.

Table 15 identifies the age groups and the number of full time and/or part time years of teaching experience the 104 respondents have accumulated over their careers. There was an even distribution of the respondents amongst the four age groups, while 42% of the teachers identified that they have been working as a teacher for 0 and 5 years.

Table 15: The ages and number of years of full time/part time teaching experience of the respondents

Age Bracket	Frequency	
	(n=106)	(%)
20-30	24	22
31-40	29	27
41-50	25	24
50 +	28	26
Years of teaching experience	**Frequency**	
	(n=104)	(%)
0-5	45	42
6-15	26	24
16-25	10	9
over 26 years	23	22

Note. One respondent did not identify his/her age and three respondents did not identify the number of full time and/or part time years they have been working as a teacher.

Current grade levels teaching

Table 16 identifies the grade levels the respondents were currently teaching. For any teacher who was teaching a split grade, each grade level was entered into the data separately. Of the 106 respondents, 48% (54/106) of them indicated that they were currently teaching at the primary grade level.

Table 16: Current grades levels taught

Grade Level	Frequency (n=106)	(%)
Primary (grades J.K.- gr. 3)	54	48
Junior (gr. 4-6)	47	42
Intermediate (gr. 7 & 8)	21	19

Previous educational background

Ninety-eight of the 106 respondents (93%) reported that they did not have a specialization in the health and/or physical education discipline and 86 (81%) of them were responsible for teaching health and physical education to their students or to other students in their school. Two of these respondents, however, explained that they were only responsible for teaching health education to their or to other students in their school. One teacher did not respond to these statements.

Canadian health and physical education resources

Table 17 identifies the various Canadian health and physical education resources that the respondents have used over the past school year. Amongst the 107 respondents, the O.P.H.E.A. resource binders (72%) and Canada's Food Guide (60%) were the two most commonly used Canadian health and physical education resources used over the last school year. All but one of these resources was currently being used by at least one of the 107 respondents.

Table 17: Health and physical education curriculum resources used by the respondents over the past year

Canadian health and physical education resource	Frequency (n=107)	(%)
1. O.P.H.E.A. Binders	77	72
2. Canada's Food Guide	64	60
3. Dairy Farmers of Ontario Nutrition programs	21	20
4. Lungs are for Life by O.P.H.E.A.	21	20
5. Other	16	15
6. Canada's Physical Activity Guide	15	14
7. Activ8 by O.P.H.E.A.	7	7
8. Centre for Addiction and Mental Health drug use and abuse curriculum	6	6
9. Always changing by O.P.H.E.A.	5	5
10. Go Girls! by O.P.H.E.A.	4	4
11. ACTION by O.P.H.E.A.	3	3
12. Take Action by O.P.H.E.A.	3	3
13. Vibrant Faces by O.P.H.E.A.	0	0

Table 18 lists the activities that the respondents have used over the past year that were not included in the checklist. This data was taken from the 16 respondents who indicated that they have used activities other than those included in the checklist.

Table 18: Other activities used by the respondents other than those not included in the checklist

Resource	Frequency
Exercise in Disguise	2
The Ontario Curriculum	2
Other Heart and Stroke Foundation kits:	
Hoops for Heart Power Pack	1
Heart Set (gr. 6-8)	1
Jump Rope for Heart	1
Thunder Bay Health Unit Resources:	
Families in Motion	1
Families are Munching	1
Substance Abuse binder	1
Internet sites:	
www.familyties.ca	1
www.nida.nih.gov	1
www.camh.net	1
Personal Resources	1
Canadian Intramural Recreation Association Resources	1
Lakehead Board of Education Resource Binder	1
Lakehead Board of Education VCR video's	1
Text: "Ready to use PE activities" (Landy & Landy)	1

HHKT awareness demographics

Thirty (28%) of the 107 respondents indicated that they were aware of the HHKT (95% C.I.= 12% - 44%). Twenty-one (26%) of these respondents worked for the public school board, while nine (35%) worked for the catholic school board. Twenty (67%) of the thirty respondents who were aware of the HHKT were able to identify its current location within their school. The four most common locations were their classroom, the staffroom, the library, and the schools resource room, which in most cases was the main office. Four of the 30 respondents had participated in a training workshop that had prepared them to incorporate the HHKT into their curriculum. Two of them participated in a 1hour workshop hosted by the faculty of education they had attended, one had attended a private 3-hour workshop conducted by the Thunder Bay Health Unit while the fourth respondent did not specify the type of training she had received.

Table 19 lists the various sources that provided each of the 30 respondents with information about the HHKT. Respondents were first asked to identify their primary source and then to identify any secondary sources that may have enhanced their knowledge and awareness of the HHKT. The Jump Rope for Heart Program and co-workers were the two most commonly cited primary (57%, 20%) and secondary (55%, 28%) sources amongst the respondents.

Table 19: Primary and secondary sources of information about the HHKT and there frequency

Source	Primary source		Secondary source	
	(n=30)	(%)	(n=29)	(%)
1. From the Jump Rope for Heart Program	17	57	16	55
2. From a co-worker	6	20	8	28
3. From a Faculty of Education workshop	3	10	1	3
4. From a student teacher	2	7	0	0
5. From the Heart & Stroke Foundation Website	1	3	2	7
6. From an administrator at my school	1	3	2	7
7. From a non Faculty of Education workshop	1	3	0	0
8. From a newsletter	0	0	1	3
9. From a friend	0	0	0	0
10.From a magazine	0	0	1	3
11.From a regional Heart & Stroke Foundation office	0	0	1	3
12. Other	0	0	1	3

Note. One teacher did not have any secondary sources that enhanced her knowledge of the HHKT.

HHKT Usage Demographics

Table 20 lists the items included in the 2001/02 edition of the HHKT and the number of respondents who have used them during the 2002/03 school year. Sixteen of the 30 teachers (53%) who were aware of the HHKT reported they also used it during the 2002/03 school year. According to these respondents the lesson plans (71%) and the posters (64%) were the two most commonly used HHKT items, while all 10 HHKT items were used by at least one of the 14 respondents.

Table 20: HHKT activities and the number of teachers who used them during the 2002/03 school year

HHKT Activity	Frequency (n=14)	(%)
1. Lesson Plans	10	71
2. Posters	9	64
3. HeartSmart™ Storybook/Puzzles	6	43
4. Stethoscope/Alcohol Swabs	6	43
5. Jumping into the Curriculum™	6	43
6. Daily Physical Activity Guide	5	36
7. Daily Physical Activity Video	4	29
8. Heart Healthy Website for Kids	2	14
9. Playskills™	2	14
10. Powerskills™	2	14

Note. Two respondents did not identify the HHKT activities they used last year.

Section B: Theoretical constructions associated with implementation

In order to determine if any constructs were associated with HHKT implementation, a 5 point Likert scale ranging from "1= strongly disagree to 5= strongly agree" was used. Table 21 identifies the nine theoretical constructs that were tested and their mean, standard deviation (S.D.), and cronbach alpha scores. The scores of the nine theoretical constructs ranged from 2.7/5 to 4.4/5 while the cronbach alpha scores ranged from 0.05 to 0.80.

Table 21: Theoretical constructs tested and their mean, standard deviation, and cronbach alpha scores

Construct	Mean	S. D.	Alpha
1. Relative Advantage	3.8	0.88	0.05
2. Compatibility	3.7	1.00	0.66
3. Complexity	4.1	0.81	0.61
4. Observability	3.7	0.76	0.51
5. Organizational climate	3.1	1.03	0.80
6. Awareness for the health and physical education discipline	4.1	0.78	0.70
7. Concern for the health and physical education discipline	4.4	0.74	0.55
8. Interest for the health and physical education discipline	3.9	0.94	0.63
9. Perceived implementation self-efficacy	4.0	0.90	0.69
10. Perceived self-efficacy for teaching physically active health and physical education lessons:			
Student	4.1	1.07	0.74
Institution	3.3	1.22	0.59
Time	3.0	1.39	0.73
Space	4.0	1.21	0.35
11. Political Climate	2.7	1.31	0.31

Seven of the constructs would have an improved internal consistency score if one of their statements were removed from the questionnaire. Table 22 identifies the constructs that would have an improved internal consistency score had one of their statements been removed, the statement that should be removed, their existing cronbach alpha score and the revised cronbach alpha score if the statement was deleted from the questionnaire.

Table 22: Improving the internal consistency scores of the HHKT questionnaire

Construct	Statement to be removed	Existing cronbach alpha score	New cronbach alpha score if statement was removed
1. Relative Advantage	15	0.05	0.57
2. Concern for the health and physical education discipline	31	0.55	0.72
3. Interest for the health and physical education discipline	35	0.63	0.76
4. Perceived self-efficacy for teaching physically active health and physical education lessons:			
Student	18	0.74	0.78
Institution	65	0.59	0.64
Time	26	0.73	0.89
Space	22	0.35	0.56

Current level of use

The current level of use amongst the 29 respondents (one respondent failed to complete this section of the survey) ranged from level 0 (non-use) to level 4 (high use) with a mean of 2.5 (level 2=low use). This means that on average the 29 respondents were currently learning how to use the HHKT.

Survey distribution amongst the two school boards

Table 23 is a breakdown of the surveys distributed, surveys returned, the level of awareness, and the level of use of the HHKT amongst the two school boards involved in the

study. This table indicates that 21 (70%) of the 30 teachers who were aware of the HHKT worked for the public school board, while 9 worked for the separate school board. Furthermore there were sixteen teachers who indicated they used the HHKT during the 2002/03 school year, 11 of which were employed by the public school board and 5 were employed by the separate school board.

Table 23: Surveys distributed, surveys returned, level of awareness and level of use of the HHKT amongst the respondents from the two school boards involved in this study

	Public school board		Separate school board	
	(n)	(%)	(n)	(%)
Surveys distributed (N= 534)	364	68	169	32
Surveys returned (N=107)	81	76	26	24
Awareness (N=30)	21	70	9	30
Use (N=16)	11	68	5	31

Summary of the results

Overall, 28% (n=30) of the 107 teachers who returned a completed survey were aware of the HHKT while 53% (n=16) of the 30 teachers who were aware of the HHKT also used it during the 2002/03 school year. Of the 107 teachers who returned a completed survey, 14.9% (n=16) had used the HHKT during the 2002/03 school year.

CHAPTER 5

Discussion

According to the Canadian Paediatric Society (2002), childhood physical inactivity and poor dietary practices increase the risk for obesity, cardiovascular disease (i.e. hypertension, hyperinsulinemia, hypercholesterolemia, hypertriglyceridemia), type 2 diabetes mellitus, inadequate bone mineralization (leading to osteoporosis), respiratory disorders and poor mental health later in life. Statistics Canada, in 1998, indicated that "approximately 28% of Canadians 12 to 14 years old and 66% of Canadian youth aged 15 to 19 years are deemed to be physically inactive" (Canadian Paediatric Society, 2002, p. 339). Health Canada, in 2001, suggested that one way to enhance the level of physical activity amongst our youth is to create an active school community "in which all citizens, including teachers, students, parents, administrators and community leaders, work together to create physical and social environments that support active, healthy lifestyles" (Canadian Paediatric Society, 2002, p. 340). A number of school based health and physical education initiatives have been developed and implemented into Ontario's elementary school system. One of these proposed initiatives is the Heart and Stroke Foundation of Ontario's, Heart Healthy Kids™ Toolkit (HHKT) which was developed in 1998.

The HHKT is a health and physical education resource developed specifically "for teachers and students from Kindergarten to Grade 8. The program includes material that will create awareness, and provide educational information about healthy lifestyle choices and the heart in a fun and interactive way" (Ennis and Associates, 1999, p. 1). The goal of the HHKT is to provide educators with the necessary information and resources they will need to educate our younger generation in the importance of being physically active, eating healthy, and living smoke-free (referred to as a heart healthy lifestyle). While the HHKT has great potential to increase awareness and involvement in physical activity amongst Ontario's youth, its awareness

and implementation amongst the elementary school teaching population within the City of Thunder Bay is not known. Therefore the focus of this study was to determine the level of awareness and use of the HHKT amongst elementary school teachers in Thunder Bay, and to identify factors that may be associated with its implementation in the classroom. It was hypothesized that the results from this study would indicate the following:

1. Less than half of the teachers involved in the study are aware of the HHKT and that an even smaller percentage of them have actually used it in the classroom over the past year.
2. Teachers who believe that the HHKT has a greater relative advantage and is less complex to use and understand are more likely to use it.
3. Teachers who believe the HHKT produces results in their students' behaviour that are readily observable and who find the HHKT is compatible with existing programs in their school are more likely to use it.
4. Teachers who have been trained to use the HHKT are more likely to implement it.
5. Teachers who are educated in a field related to the health and/or physical education discipline (i.e. health sciences, kinesiology, health and physical education, etc.) are more likely to use the HHKT.
6. Schools whose principals support implementation of the HHKT and whose teachers are satisfied with their jobs and their administrators will implement the HHKT more often.
7. Schools whose teachers feel they are involved in the decisions regarding school policy and practice will have greater levels of HHKT implementation.
8. Teachers who feel confident in their ability to implement the HHKT as intended and who feel confident that they can teach physically active health and physical education classes will be more likely to use it.
9. The political climate of the current education system will have an affect on HHKT

implementation as it will limit the time and resources available for teachers to use to teach quality health and physical education to their students.

HHKT Awareness and Use

The results from the present study indicated that 28% (n=30) of the 107 respondents were aware of the HHKT while 53% (n=16) of these respondents actually used it during the 2002/03 school year. This finding would suggest that one of the problems with the HHKT is its dissemination process as it appears that once teachers are made aware of the HHKT there is a greater chance that they will implement it into their classroom.

For those respondents who used the HHKT during the 2002/03 school year, the lesson plans and the posters were reportedly used by 71% and 64% of them respectively. These resources represent the most commonly used components of the HHKT amongst the study population.

HHKT Training and implementation

Four of the sixteen respondents who indicated they had used the HHKT during the past school year participated in a pre-service training workshop on the HHKT and its implementation, therefore it was not possible to determine if participating in a HHKT pre-training workshop was associated with a higher incidence of HHKT implementation.

Education in Health and Physical Education and HHKT Implementation

Eight of the respondents who provided information relating to their educational background indicated they were educated in the health and/or physical education field or a related discipline therefore based on this small number, it was not possible to determine if an association existed between previous education training and HHKT implementation.

Factors associated with implementation of the HHKT

The results from this study indicated that teachers who had high self-efficacy for teaching physically active health and physical education classes (self efficacy), who were aware of and concerned for the health and physical education discipline (awareness and concern), who did not perceive the HHKT to be too difficult to implement (complexity) and who felt the HHKT was superior to existing health and physical education programs (relative advantage) were more likely to incorporate it into their regular health and physical education curriculum.

Data collection process

It is believed that the time the survey was distributed (June, 2003) affected the overall response rate. Furthermore, while collecting the data, the researcher was notified by a number of the participating schools principals that there currently were up to three other major research projects circulating throughout many of the schools involved in this study. This may have affected the final response rate, as it is assumed teachers are more likely to respond to one survey rather than to two or three. Finally, even though permission was granted from the separate school board, in their approval letter the director clearly stated that it was up to the principal to grant approval.

CHAPTER 6

Summary, Conclusion, Future Recommendations

Summary

The focus of the present study was to assess the extent to which elementary school teachers in Thunder Bay were aware of and actively using the HHKT, and to determine which factors were associated with its implementation. In order to evaluate these objectives an 84-item self-report survey questionnaire (Appendix A) was constructed. The purpose of the questionnaire was to gather information that would provide answers to the following research questions:

1. What percentage of elementary school teachers in Thunder Bay are aware of the HHKT?
2. For those teachers who are aware of the HHKT, how many of them have used it in the past year (2002/03) and to what extent and at what level?
3. How do the following constructs affect HHKT implementation: relative advantage, complexity, compatibility, and observability of the HHKT, the organizational climate, training/educational background, HHKT implementation self-efficacy, teaching physically active health and physical education self-efficacy, and the political climate of the current education system?

Five hundred and twenty-nine elementary school teachers selected from 34 of the 50 public and separate elementary schools in the City of Thunder Bay were asked to complete a seven-page survey. One hundred and seven completed surveys were returned to the researcher by the deadline for a final response rate of 20%. Thirty respondents (28%) identified that they were aware of the HHKT, sixteen (53%) of which reported that they have used it during the 2002/03 school year.

Relating the hypotheses to the results

The first hypothesis which suggested that less than half of the teachers involved in the study would be aware of the HHKT and that an even smaller percentage of them would have actually used it in the classroom during the 2002/03 school year. The present study found that 28% of the 107 teachers who responded to the survey were aware of the HHKT while 14.9% of the total population used it during the 2002/03 school year thus confirming this hypothesis.

The second hypothesis suggested that those teachers who believe the HHKT has a greater relative advantage and is less complex to use and understand would be more likely to use it. This hypothesis was as well supported through the statistical analysis as it was determined that those teachers who felt the HHKT was less complex to use and understand when compared to other education resources and who believed the HHKT was superior to other health and physical education resources were more likely to implement it into their classroom.

The results also confirmed the seventh hypothesis which stated that those teachers who felt confident in their ability to implement the HHKT as it was intended to be used (self efficacy) and who felt confident that they could teach physically active health and physical education classes were in fact more likely to use it.

Unfortunately the small sample size did not offer the opportunity to determine if receiving previous HHKT training and post secondary school education in health and/or physical education related disciplines was associated with greater HHKT implementation. It was also not possible to determine if a relationship existed between HHKT implementation and the political climate of the current education system nor was it possible to determine if a relationship existed between HHKT implementation and its observability and/or compatibility with existing school programs.

Conclusion

Physical inactivity continues to be a major concern amongst school age children and youth in Ontario. In order to fight this epidemic and its delirious effects our education system must become more accountable for promoting active healthy living amongst our younger generation. There are a number of educational resources that have been developed and implemented into Ontario's education system that are geared towards increasing the level of participation in physical activity amongst Ontario's youth. One of these resources is the Heart and Stroke Foundations of Ontario's Heart Healthy Kids™ Toolkit.

The present study sought to determine the number of elementary school teachers within the City of Thunder Bay who were aware of and/or using the HHKT in their classroom during the 2002/03 school year. The study also looked at the factors that were most closely associated with program implementation so that future program developers may utilize similar implementation strategies when developing their programs. The study determined that 28% of the 107 respondents were aware of the HHKT while 53% of them had reportedly used the HHKT during the 2002/03 school year. The study's results also illustrated the fact that in order for an educational resource such as the HHKT to be implemented into the education system it has to be easy to use and understand, compatible with existing school programs, and it must be viewed by its implementers to be superior to programs that already exist within the school.

Future Recommendations

It is suggested that future research efforts take the following recommendations into consideration:

1. Because data collection was gathered solely through the use of a questionnaire, it is suggested that focus interviews also be utilized as a method of data collection. Using more than one data collection method will further validate the findings.

2. Since all of the data was collected at one time, the generalizability of the results is restricted. Therefore a longitudinal study that utilizes several different data collection periods is suggested as there is more flexibility given to teachers to respond to the survey.
3. Distribution of the survey during a time when the respondents have more free time available to respond to it is recommended. A number of teachers and principals suggested that the survey be distributed during early October or immediately after the March break as there are fewer obligations they must commit to.

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Appendices

Appendix A

XX-XX-XX

Heart Healthy Kids™ Toolkit (HHKT) Survey

This survey is part of a study that is being conducted by Mike Paularinne, a graduate student in the Faculty of Education at Lakehead University who is working towards completing a Master of Education degree. The study is designed to gather information about teacher's awareness, adoption, and implementation of the Ontario Heart and Stroke Foundation's Heart Healthy Kids™ Toolkit (HHKT), and the factors that affect its use in the classroom. **This survey will not take more than 15 minutes of your time to complete**. Please respond to each item by filling in the blank or by selecting the best response. When you have completed the survey please place it into the envelope that has been provided for you, seal it, and courier it to the secretary at Oliver Road School or fax it to 346-7771 (Attn. Mike Paularinne) by the end of the week (June 20, 2003). Your participation in this study is entirely voluntary and all responses are anonymous and will remain confidential. Information from this survey will assist us in developing effective dissemination strategies for implementing health curriculum support materials in the schools.

Thank you for agreeing to participate in this study!!!

Section A

1. Sex: [ ] Female [ ] Male

2. Age: [ ] 20-30 [ ] 31-40 [ ] 41-50 [ ] 50+

3. How many years have you been employed as a teacher (either on a full time or a part time basis)?_____
   (**do not include any years in which you were employed as an occasional teacher**)

4. What grade level(s) are you teaching this year? _____

5. Do you have a specialization in health and/or physical education (ex. bachelor degree in health and physical education, kinesiology, or A.Q. specialist courses in health and physical education, etc.)?

   [ ] Yes [ ] No

   → If Yes, please specify: _____

6. Are you responsible for teaching health and physical education to your students or to other students in your school?

   [ ] Yes [ ] No

XX-XX-XX

7. Which of the following Canadian health and physical education curriculum resources have you used in the past year? (place a check (√) beside all that apply)

____ O.P.H.E.A. Binders
____ Lungs are for Life by O.P.H.E.A.
____ Canada's Physical Activity Guide
____ Activ8 by O.P.H.E.A.
____ Go Girls! by O.P.H.E.A.
____ Vibrant Faces by O.P.H.E.A.
____ ACTION by O.P.H.E.A.
____ Dairy Farmers of Ontario Nutrition programs
____ Canada's Food Guide
____ Always Changing by O.P.H.E.A.
____ Take Action by O.P.H.E.A.
____ Centre for Addiction and Mental Health drug use and abuse curriculum
____ Other - please specify_____

8. Have you heard about the HHKT (**Heart Healthy Kids™ Toolkit**)?

[ ] Yes [ ] No

If you responded **NO** to question #8, please place your survey into the envelope that has been provided for you, seal it, and courier it to the secretary at Oliver Road School or fax it to the researcher 346-7771 (Attn. Mike Paularinne) by the end of the week (June 20, 2003), as it has been completed.

Thank you!!!

It is imperative that you return the survey as the information you have provided is very important to this study

9. Do you know where to find the HHKT in your school?

[ ] Yes [ ] No

If YES, please indicate its location. _____

10. How did you **first** learn about the HHKT? ****select only 1 source****

____ From the Jump Rope for Heart Program
____ From the Heart & Stroke Foundation Web site
____ From administrators at my school
____ From a regional Heart & Stroke Foundation office
____ From a workshop at a Faculty of Education
____ From a friend
____ From a magazine
____ From a newsletter
____ From a student teacher
____ From a co-worker
____ From a workshop (other than ones offered by Faculties of Education)
____ Other - please specify _____

XX-XX-XX

11. Which of the following sources have provided you with **additional** information about the HHKT? (select all that apply)

____ From the Jump Rope for Heart Program
____ From the Heart & Stroke Foundation Web site
____ From administrators at my school
____ From a regional Heart & Stroke Foundation office
____ From a workshop at a Faculty of Education
____ From a friend
____ From a magazine
____ From a newsletter
____ From a student teacher
____ From a co-worker
____ From a workshop (other than ones offered by Faculties of Education)
____ Other - please specify _____

12. Have you participated in a training workshop that has prepared you to incorporate the HHKT into your curriculum?

[ ] Yes [ ] No

If Yes, please specify the type and duration of training you received (e.g. in-service, 3 hrs; Faculty of Education, 1hr)

_____

_____

_____

XX-XX-XX

Section B

The following questions assess several theoretical constructs associated with implementation-organizational climate; awareness and concern for quality health and physical education; characteristics of the HHKT; HHKT implementation self-efficacy; and, teaching physically active health and physical education self-efficacy.

Instruction: Please indicate the extent to which you agree or disagree with the following statements by circling the appropriate response.

	Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
13. When I have a difficult assignment I can usually count on getting assistance from my principal.	1	2	3	4	5
14. I don't know what a quality health and physical education curriculum is.	1	2	3	4	5
15. The HHKT would help to improve the overall quality of health and physical education teaching in this school.	1	2	3	4	5
16. The recent provincial emphasis on literacy and numeracy has decreased the time and resources devoted to health and physical education in my school board.	1	2	3	4	5
17. I am not confident that I can use the HHKT material effectively in the classroom.	1	2	3	4	5
18. My students do not enjoy spending large amounts of health and physical education class time being physically active.	1	2	3	4	5
19. We are encouraged to speak our minds, even if it means disagreeing with our administrators.	1	2	3	4	5
20. I don't believe quality health and physical education is so important.	1	2	3	4	5
21. The HHKT would fit in well with my teaching style.	1	2	3	4	5
22. The space I use for my health and physical education classes is used for other purposes.	1	2	3	4	5

XX-XX-XX

	Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
23. You don't get much sympathy from higher-ups in this school board if you make a mistake.	1	2	3	4	5
24. I am interested in more information on the time and energy commitments that a quality health and physical education curriculum would require.	1	2	3	4	5
25. The HHKT does not require complex teaching strategies.	1	2	3	4	5
26. My health and physical education class sessions are not too short in duration.	1	2	3	4	5
27. Administrators at my school make an effort to talk with us about our career aspirations.	1	2	3	4	5
28. I am aware of curricula that addresses health and physical education.	1	2	3	4	5
29. Other teachers at my school do not highly value health and physical education.	1	2	3	4	5
30. In this school board, decisions are made at those levels where the most adequate and accurate information is available.	1	2	3	4	5
31. I am concerned about a quality health and physical education curriculum in my school.	1	2	3	4	5
32. In general, the HHKT would be less effective in creating attitudes that encourage heart healthy behaviours than our current curriculum practices.	1	2	3	4	5
33. My students are not concerned with being physically active.	1	2	3	4	5
34. When decisions concerning health and physical education are being made, persons affected by them are not asked for ideas.	1	2	3	4	5
35. I am not interested in learning more about quality health and physical education curricula.	1	2	3	4	5

XX-XX-XX

	Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
36. There are too many other priorities in my school that affect the amount and quality of health and physical education that my students receive.	1	2	3	4	5
37. I have too many students in my health and physical education class.	1	2	3	4	5
38. My school board has a real interest in the welfare and happiness of those who work here.	1	2	3	4	5
39. I cannot distinguish between different curricula which addresses health and physical education.	1	2	3	4	5
40. The HHKT would make teaching health and physical education more effective.	1	2	3	4	5
41. My students do not receive enough health and physical education classes per week.	1	2	3	4	5
42. Those above me are not receptive to my ideas and suggestions.	1	2	3	4	5
43. I am not certain why some individuals consider quality health and physical education important.	1	2	3	4	5
44. In my opinion, the HHKT would interfere with the current health and physical education curriculum.	1	2	3	4	5
45. Administrators at my school provide adequate support for health and physical education.	1	2	3	4	5
46. My school board tries to improve its working conditions.	1	2	3	4	5
47. I know the status of quality health and physical education in my school board.	1	2	3	4	5
48. The material in the HHKT would be hard for teachers to understand.	1	2	3	4	5

XX-XX-XX

	Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
49. My students highly value health and physical education.	1	2	3	4	5
50. I know why quality health and physical education is so important for schools to address.	1	2	3	4	5
51. There is inadequate time to effectively teach health and physical education because of mandated provincial testing in other subjects.	1	2	3	4	5
52. The HHKT would not be more effective in increasing heart healthy behaviours among students than our current curriculum practices.	1	2	3	4	5
53. I have enough space for all of the students in my health and physical education class.	1	2	3	4	5
54. I would like to explore the possibility of improving quality health and physical education in my school.	1	2	3	4	5
55. It is the right time for me to use the material in the HHKT to assist me in teaching my health and physical education lessons.	1	2	3	4	5
56. I have too little health and physical education contact time with my students.	1	2	3	4	5
57. I do not have enough health and physical education equipment for all of my students to be physically active at the same time.	1	2	3	4	5
58. The HHKT would not be difficult to use.	1	2	3	4	5
59. My students enjoy being physically active during my health and physical education classes.	1	2	3	4	5
60. Students will enjoy learning with the HHKT.	1	2	3	4	5
61. When I am teaching health and physical education to my students there is more than one class sharing the gymnasium (activity facility).	1	2	3	4	5

XX-XX-XX

	Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
62. I am confident that I can effectively teach HHKT instructional materials.	1	2	3	4	5
63. I have enough time in the year to effectively teach quality health and physical education to my students.	1	2	3	4	5
64. Administrators at my school rarely cancel my health and physical education classes.	1	2	3	4	5
65. Parents in my community consider health and physical education important.	1	2	3	4	5
66. The HHKTs' impact on my students' health behaviour would be readily observable.	1	2	3	4	5

Section C

Instructions: Please identify whether the following statements are true or false by circling the option that **best** represents your current practices.

67. I have not communicated with others about the HHKT (beyond simply acknowledging that it exists).	True	False
68. I have analyzed content and material from the HHKT in order to make a decision about whether or not to use it.	True	False
69. I am currently preparing or have prepared myself in order to begin using the HHKT.	True	False
70. I have discussed with others the actual sharing of resources (e.g. personnel, materials, time schedules, etc.) in order to use the HHKT.	True	False
71. I have assessed the use of the HHKT in my classroom for the purpose of enhancing student learning expectations.	True	False
72. I am not at all involved, nor have I been involved with the HHKT during this school year.	True	False

XX-XX-XX

73. I have discussed with others the HHKT in general terms to better understand what it is like or how it might work.	True	False
74. I have assessed, in detail, the requirements and available resources for the initial use of the HHKT.	True	False
75. At this time, my personal use of the HHKT is going along on a smooth and routine basis.	True	False
76. I have discussed with others ways I might use the HHKT in order to enhance health and physical education student expectations.	True	False
77. I have taken no action to analyze what the HHKT is like or how it is used.	True	False
78. I am currently varying my use of the HHKT specifically to produce better student health and physical education learning expectations.	True	False
79. I am currently learning or have learned about what the HHKT is and is not.	True	False
80. I have assessed my own use of the HHKT with respect to problems of logistics, management, scheduling, resources and general reaction of students.	True	False
81. I have participated in pre-use training or planning for resources, logistics, scheduling etc., in preparation to begin using the HHKT.	True	False
82. I have already begun to use the HHKT.	True	False

****Please ensure that you have responded to each of the above statements****

Section D

83. How many times have you used the HHKT in the **last** year? _____

XX-XX-XX

If you have **not** used the toolkit this past year, please place your survey into the envelope that has been provided for you, seal it, and courier it to the secretary at Oliver Road School or fax it to the researcher 346-7771 (Attn. Mike Paularinne) by the end of the week (June 20, 2003), as it has been completed.

Thank you!!!

It is imperative that you return the survey as the information you have provided is very important to this study

84. For the following question please identify:

Part A: the components in the toolkit that you have used in the last year
Part B: the number of times they have been used in the last year

Part A Put a (√) beside any of the following HHKT activities that you have used in the last year.	**Part B** In the last year, how many times did you use each of the activities identified in Part A?
[ ] Daily Physical Activity Guide	
[ ] Daily Physical Activity Video	
[ ] Lesson Plans	
[ ] Posters	
[ ] HeartSmart™ Storybook/Puzzles	
[ ] Heart Healthy Website for Kids	
[ ] Stethoscope/Alcohol Swabs	
[ ] PlaySkills™	
[ ] PowerSkills™	
[ ] Jumping into the Curriculum™	

XX-XX-XX

REMINDER: When you have completed your survey please place it into the envelope that has been provided for you, seal it, and courier it to the secretary at Oliver Road School or fax it to the researcher 346-7771 (Attn. Mike Paularinne) by the end of the week (June 20, 2003).

Thank you!!!

It is imperative that you return the survey as the information you have provided is very important to this study

Thank you for taking the time to complete this survey!!!

Lakehead
UNIVERSITY

Office of Research

Tel. (807) 343-8283
Fax (807) 346-7749

28 May 2003

Mr. Michael Paularinne
Faculty of Education
Lakehead University
THUNDER BAY, ON

Dear Mr. Paularinne:

Based on the recommendation of the Research Ethics Board, I am pleased to grant ethical approval to your research project entitled, "IMPLEMENTATION OF THE HEART HEALTH KIDS™ TOOLKIT BY ELEMENTARY SCHOOL TEACHERS IN THUNDER BAY AND THE FACTORS THAT AFFECT ITS USE IN THE CLASSROOM."

The Research Ethics Board requests an annual progress report and a final report for your study in order to be in compliance with Tri-Council Guidelines. This annual review will help ensure that the highest ethical and scientific standards are applied to studies being undertaken at Lakehead University.

Completed reports may be forwarded to:

Lynn Howe
Office of Research
Lakehead University
955 Oliver Road
Thunder Bay, ON P7B 5E1
FAX: 807-346-7749

Best wishes for a successful research project.

Sincerely,

Dr. Lori Chambers
Chair, Research Ethics Board

/lmh
Encl.
cc:
Dr. J. O'Meara, Chair, Graduate Studies and Research

THUNDER BAY CATHOLIC DISTRICT SCHOOL BOARD

CATHOLIC EDUCATION CENTRE · 115 WEST MARY STREET, 2ND FLOOR · THUNDER BAY ON P7E 4K5 · PHONE (807) 625-1555 · FAX (807) 623-0431

CAROL-LYNNE OLDALE
Director of Education, Secretary & Treasurer

May 28, 2003

Mr. Michael Paularinne
301 Phillips Street
Thunder Bay, ON P7B 5G9

Dear Mr. Paularinne:

Thank you for the information you provided regarding the survey you are requesting to carry out in some of our elementary schools regarding the Implementation of the Heart Healthy Kids Toolkit™.

I reviewed the survey questionnaires that you are planning to distribute and give permission for its circulation within the schools of the Thunder Bay Catholic District School Board you have listed. ***However, please note that it is the decision of the school principal to determine whether their school will participate in this project.***

Please be aware that June and early September are extremely busy times in the schools and your request for their cooperation to conduct the survey should be postponed until the latter part of September or October.

For your information I am enclosing a listing of our schools showing the addresses as well as the names of the principals and the number of teachers on staff. A copy of this letter and your request have also been forwarded to each of the schools for their information.

Best wishes with this project. I look forward to receiving a copy of the results of your survey.

Sincerely,

Carol-Lynne Oldale
Director of Education
CLO/jas
Attachment
c Principals
Devona Crowe, Superintendent of Education

Appendix D

June 9, 2003

Dear Participant,

Thank you for taking the time out of your busy schedule to read this cover letter. I am a graduate student in the Faculty of Education at Lakehead University who is working towards completing a Master of Education degree. I would like to have your participation in a study I am conducting entitled: **Implementation of the Heart Healthy Kids™ Toolkit by Elementary School Teachers in Thunder Bay and the Factors that affect its Use in the classroom.**

The purpose of this study is to determine the extent to which elementary school teachers in Thunder Bay are aware of and actively using the Heart Healthy Kids™ Toolkit (HHKT) in the classroom, and to determine the factors associated with its implementation. The information gained from this study will be used to assist in the development of effective dissemination strategies for implementing health curriculum support materials in Ontario elementary schools.

This survey will not take more than 15 minutes of your time to complete, your participation is strictly voluntary, and you may withdraw from the study at any time. There are no risks associated with the study, all responses are accepted, and there are no "right" or "wrong" answers. To assure confidentiality, all surveys that have gone to your school have been given a code, which can only be accessed by my supervisor and myself. No individuals or schools will be identified in the final report and only the overall results from the study may be shared with the Heart and Stroke Foundation of Ontario. All data that is collected will be stored in the office of my supervisor at Lakehead University for seven years. When you have completed the survey, please place it into a sealed envelope, and courier it to the secretary at Oliver Road School, or fax it to the researcher 346-XXXX (Attn. Mike Paularinne) by the end of the week (June 20, 2003). By completing this survey and returning it to the researcher, you are indicating that you agree to participate in this study, and have read and understood this cover letter.

Thank you for agreeing to consider participating in this study and for taking the time to read this letter. Should you have any questions concerning the survey or the study, or you would like to see the final report, which will be made available by request upon the completion of this project, please feel free to contact me at 767-XXXX or by e-mail at xxxxxxxxxx@hotmail.com.

Sincerely,

Mike Paularinne
Tel: 767-XXXX
Fax: 346-XXXX
e-mail: xxxxxxxxx@hotmail.com